

MINING WORLD

MAY, 1949

VOL. 11 No. 5

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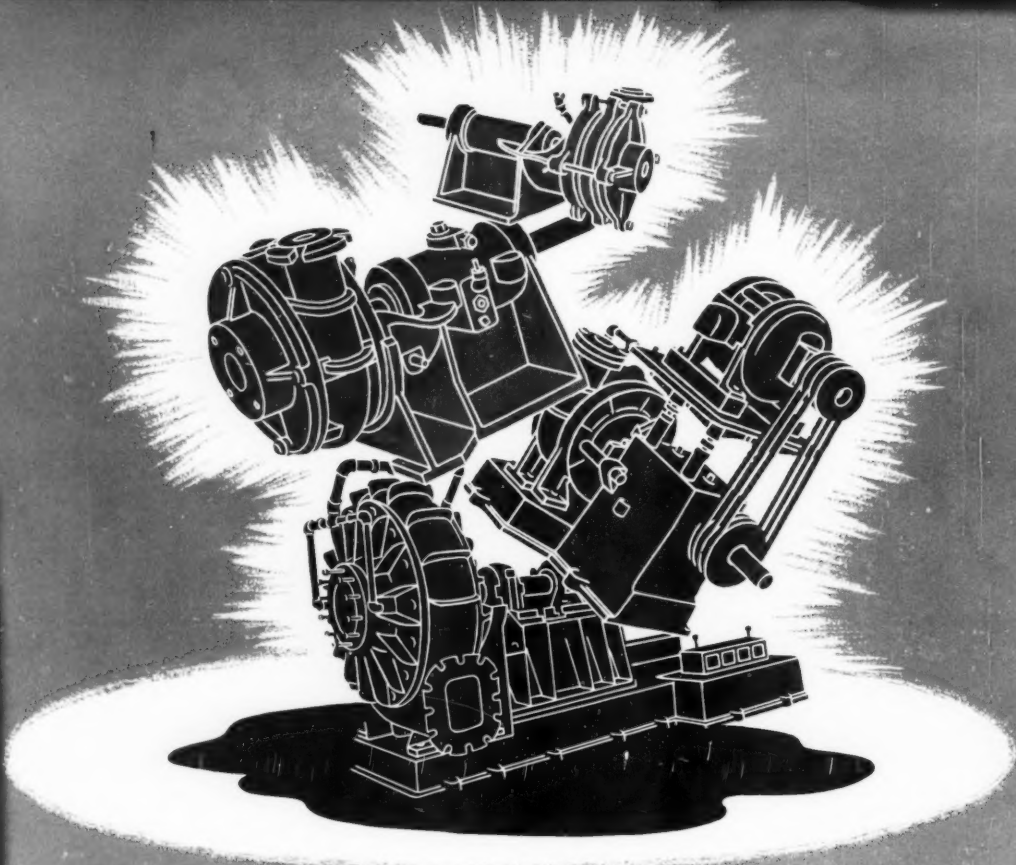
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2	25
3	50
4	75
5	100
6	125
7	150
8	175
9	200
10	250
11	300
12	350
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16	550

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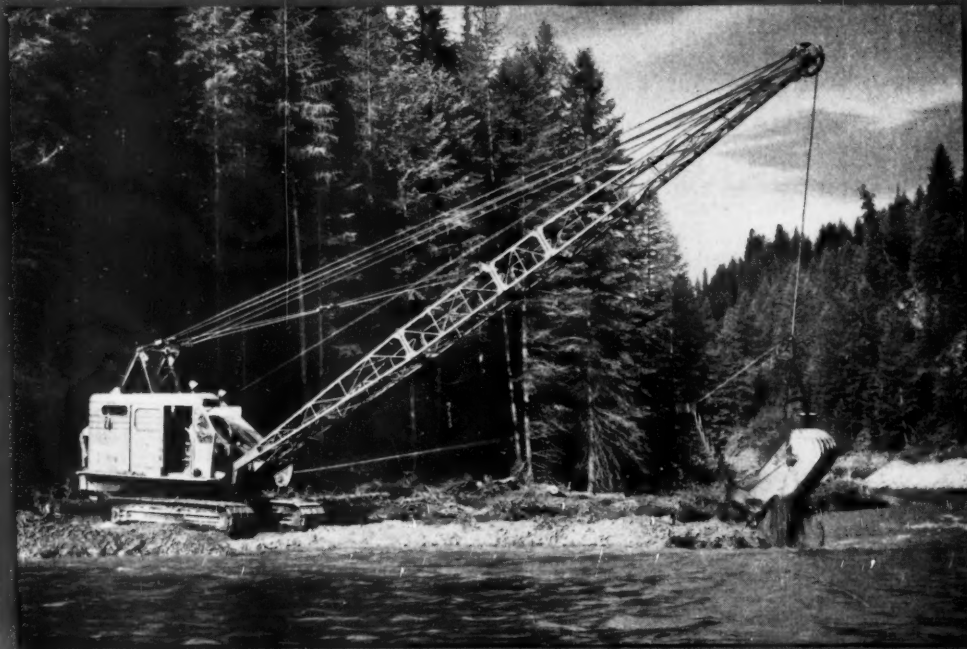
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How to make a "Gold Digger" pay off



P & H Model 655 B dragline, owned by South Fork Placers, Coeur d'Alene, and powered with a Cummins General Motors Series 71 Diesel engine.

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GRAB SAMPLES—From the Mail

Soft Money Again

Dear Sir:

I want to salute you for your editorial in the February "Mining World"—"Especially for Soft Money Men."

I wish it were compulsory for each Senator and Congressman in the United States to read your article before he was allowed to eat his breakfast and again before he goes to bed. Keep it up and somewhere down the line you surely will reap a reward, if not in cash at least in the hearts of the real prospectors.

I. W. Phillips
Ponca, Arkansas

\$20 Gold Pieces at \$90

Dear Sir:

Many of your readers were much interested in "Free Gold and the Bomb" in the March number of "Mining World."

It is getting too plain that some group is just holding the price of gold at \$35 for their own manipulations, pocketing the difference and forbidding others to hold any.

For a while we would have thought that the high gold market outside of the United States was somewhat a flurry caused by war business boom; now nearly all other metals sell for what it costs to produce them. Platinum, when released from the OPA control, went up; it cost that much to produce it.

Gold would do the same if those who have the price control would lose their grip, and this may come. I enclose herewith a page from a Paris newspaper which gives light to that subject. You will read under Gold Market and Money quotations: "The Paris gold market has a trend to become international . . . follows the official quotations: Gold (bars) per gram \$2.52. Troy ounce \$78.37. Note also the U. S. 20-dollar gold piece is quoted at nearly \$90. Is that sentimental value? By the way, either there was a museum piece stolen or, having an official quotation, would there not be a steady supply crossing the Atlantic . . . just enough to not choke the wise birds that lay such profitable eggs. . . ."

Pretty soon we will have WPA back again. It would do the country a much better turn if the price of gold was raised to its proper level or to have an open market on newly mined gold. It may retard depression.

Charles H. Labbe
210 Baltimore Street
Las Vegas, Nevada

A Deplorable Situation

Dear Sir:

While true that Oregon is not one of the more important producers of ores and metals, it is the state in which I am particularly interested and in which I have owned mining properties for the past thirty years. At present, as we all know, there is but little activity in mining, the Federal Government having dealt a severe blow to the industry, as evidenced especially in the fields where chromite and cinnabar should be developed and produced, not only for the direct benefit of owners, but also for protection of this nation in the event of another war.

The Federal Government is likewise responsible for the deplorable situation so

far as the gold miner is concerned. There has been a sharp rise in the price of every commodity with the exception of gold, which has been pegged at \$35 per ounce for the past decade or more. Here is where the shoe pinches me, as I am the owner of placer properties which cannot be profitably operated under the current conditions involving top wages and excessive cost of equipment and supplies. However, I'm wasting your time and my own in reviewing a situation with which you are very familiar.

Here's hoping for a favorable change in the very near future.

W. L. Mecker
5680 N. E. Sandycroft
Portland, Oregon

Repair Job Under Way

Dear Sir:

I broke my leg on March 9, 1948, while working in a mine at Green River, Wyoming, and since that time have been doing my drifting, crosscutting, sinking and raising at various hospitals. I sank 61 days at Sweetwater Memorial Hospital at Rock Springs, Wyoming, and drifted to Veterans Hospital at Cheyenne, Wyoming, on May 10. Drifted from there to Fitzsimons Hospital on May 25. I did considerable crosscutting there until August 24, when I blasted a big round in Surgical Ward No. 5 and immediately drifted to Memorial Hospital at Casper, Wyoming.

With the help of Dr. Gordon Whiston and Dr. Anderson we got some solid timber from my left hip and repaired some broken timbers in my lower left leg, which was badly caved and faulted. After sinking and raising for 75 days at Casper, I started a long crosscut to the Veterans Hospital at Fort Harrison, Montana, arriving on November 12.

The paystreak here is pretty narrow. The walls are hard, a true contact vein between granite and lime. I am close to a smelter, the labor supply is rather short, but the back is good.

With a good lead market, I think I will be mining here for about 60 days.

Percy S. Dodge
152 West Granite Street
Butte, Montana

More Soft Money

Dear Sir:

I wish to commend you for your editorial—February issue—"Especially for Soft Money Men."

I tried to put over this same argument at a meeting of the Northwest Mining Association several years ago. Most of the members present were interested in lead and zinc. They were too young to have had direct experience with the early gold prospecting days. Consequently, the argument fell on deaf ears.

I hope you will continue to publish material along this line. Only by constant reiteration will we be able to make the people understand that gold prospecting and mining is the spark plug which makes the mining industry tick.

Henry S. Mears
519 N. W. Park Avenue
Room 215
Portland, Oregon

(More Letters on Page 31)

MINING WORLD



Good as gold

Keeping pace with doodlebug demands on this placer gold mining operation is an easy job for this Bucyrus-Erie 22-B drag-line. That's because the 22-B combines a speedy dig, swing and dump cycle with strength and durability to stay on the job shift after

shift with the same high-output dependability. Unvarying control response keeps the operator in touch with the load for more accurate work, higher overall efficiency. Sturdy construction and ease of maintenance mean reliable operation, less lost time. See your Bucyrus-Erie distributor for more information on the cost-cutting 22-B and other machines in the Bucyrus-Erie $\frac{3}{8}$ - to 2½-yd. line.

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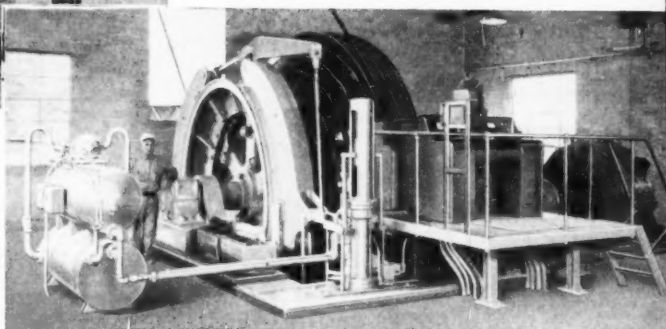
A Revolutionary

NORDBERG Automatic Hoist

at Snow Hill's
Modern Mine



The Nordberg fully automatic hoist recently placed in service at the Green Valley Mine #2 of the Snow Hill Coal Corporation is another of the many outstanding developments that Nordberg has made in the mine hoisting field. This hoist is fully automatic although it can be operated manually if desired. In automatic operation, the skip is loaded with 24,000 pounds of coal from the weigh pan, then raised to the top of the tippie and dumped, with the hoisting cycle being repeated every 62 seconds as long as there is coal available for hoisting. No operator is required either underground or on the surface. Positive safety devices provide protection against any contingency which may arise.



Nordberg Automatic Hoist installed at the Snow Hill Coal Corporation Green Valley Mine #2, near Terre Haute, Indiana. This hoist has a 9 to 16 foot diameter, double, cylindro-conical drum with skip and counterweight and is driven by 1250 HP DC motor.

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The Nordberg Automatic Hoist is applicable for either metallic and non-metallic mines, where continuous automatic hoisting is desired. Nordberg engineers will gladly help you determine whether automatic hoisting will be profitable for your operations and recommend the type of hoist best suited for the service. Write for detailed information today.

H349

Duty Cycle of Snow Hill Hoist

700 tons of coal per hour maximum from lower seam.
710 ft. lift from lower loading point to dump.
12 tons of coal per skip.....24,000 lbs.
Skip, bail and rope.....23,800 lbs.
Offset by a counterweight of.....35,800 lbs.
Loading of skip from weigh pan completed in 5 seconds.
Skip accelerates to maximum speed in 5 or 6 seconds.
Skip reaches headframe in 16 seconds.
Skip pauses in dumping horns 4 seconds to allow lowering sequence to start.
A complete hoisting cycle every 62 seconds.

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Mills



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MINING WORLD

with which is combined
THE MINING JOURNAL

A Miller Freeman Publication

Published monthly except in April when publication is semi-monthly

MAY, 1949

VOL. 11 No. 6

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DRIFTS AND CROSSCUTS

By Charles F. Willis

Geophysical Discoveries Rate Legislation

Geophysics has progressed to a place where it should have legal recognition. Geophysical prospecting involves the factors of a highly trained technician, who should also be a geologist, and expensive equipment. An investor would be unwilling to venture capital for this type of work under existing laws unless the land to be explored was patented or title protected in some manner. Otherwise, any slight indication of potential mineral deposits would immediately cause locations to be made, thus clouding the title, and probably causing abandonment of the work.



First, we definitely need a means for protecting those who are willing to risk large sums in exploration of extensive tracts of ground, using the latest scientific equipment for geological and geophysical surveys. Existing laws provide no means by which we can hold geologically promising, sizable areas of public domain which are necessary for a proper study of a particular district. The nearest approach we have is the 160-acre placer claim, but such claims are too cumbersome, do not apply in areas where rock is exposed at the surface, nor do they provide full protection for discoveries made in solid rock beneath an overburden.

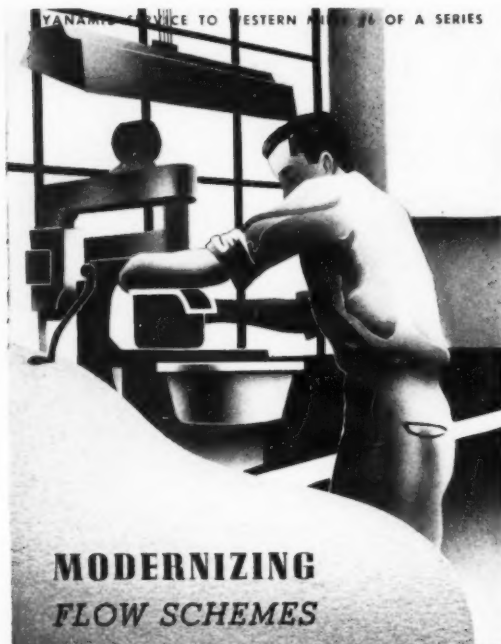
Second, it is also felt that bona fide geological and geophysical surveys should be permitted in satisfaction of assessment requirements on unpatented mining claims. The very valid reason for this is that most of the surface showing have already been located and explored. We are now reduced in our search for ore to probing the depths of the earth for mineral deposits which do not outcrop. In fact, most of our future worthwhile base metal discoveries in this country must be made from these blind ore bodies. Therefore, in order even to commence an intelligent search we have to apply geological and, in many cases, geophysical methods of ore finding before we can start further exploration underground with any degree of proficiency. In this connection, our more forward looking sister nation, Canada, has for some time allowed assessment in the form of geological and geophysical surveys.

To sum up, we need a new kind of mining claim, which would embrace up to a section of ground, which can be justified by means of a geological or geophysical survey and evidence. We should have a general revision of our mining code, whereby unpatented lode and placer claims can be held by making geological and geophysical surveys as assessment. In other words, the sciences of geology and geophysics should be recognized in our mining laws.

That Assessment Work Problem

The question as to whether or not assessment work on mining claims shall be required this year is again being argued in Washington. Along with it comes the usual discussion on the whole subject of assessment work and the suggestion that something should be done to find a substitute for the age-old expression of good faith. Of course, the continued year-after-year moratoriums on assessment work have done much to bring the question into prominence and stimulate discussion.

It is felt by most mining men that it would be idle to attempt to replace the law requiring assessment work with some other requirement until and unless the government is in a position to enforce any new plan. Setting up such a program, creating an additional department or



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sub-department to enforce such a law, would serve no particular purpose so far as the future development in the mining resources on the public domain is concerned.

The requirement of the performance of annual assessment work as it is now written and interpreted serves no purpose other than to protect the possession of a locator against claim jumpers. Nothing else could be put in its place without a complete revision of the whole theory of possessory rights. There is nothing the government can do which would be practical and operative about tightening up the mining laws to prevent relocation of claims by persons who have failed to do their assessment work until the government has some definite means of checking locations and keeping in touch with work performed.

Before making any decision regarding increased requirements, it would be well to recognize the reasons why undeveloped locations are allowed to lie idle. This condition exists because of the general lack of interest in mining—not the stubbornness of the claim owner. In the days when we had mining activity we had but little trouble with inactive claims; they were either worked, or no one wanted them, or they were contested.

There have been many suggestions as to what might replace or be substituted for the current annual assessment work requirement. Some of them are:

1. Base annual assessment work on footage advanced or cubic footage moved, instead of dollar of work—and enforce the law;

2. Require diligent and continuous work from the date of location, continuing until the existence of a potentially valuable commercial mineral deposit has been demonstrated;

3. Require sufficient development of all claims so that they could be shown to be a part of a legitimate operation and not held for purely speculative purposes or for purposes other than mining;

4. Require that for unpatented lode claims the annual assessment work (including improvements) consist of (a) Excavation of 250 cubic feet of rock in place, or 1,000 cubic feet of other development and or mining, or in the building of roads or other facilities upon such claim and beneficial to the development thereof, or roadways not upon the claim, but leading to and appurtenant and beneficial thereto, and upon a right-of-way owned by the owner of such claim; (b) At least 50 linear feet of drilling in exploratory work on each claim; and (c) Improvements of a value of at least \$200 in necessary building, mine timbering, power lines, or other facilities essential or proper for development of such claim;

5. Permit assessment work to be done on any one or more claims, of a group of contiguous claims, for the benefit of the group or some part of the group, but that such work shall in the aggregate equal the requirements of a single claim multiplied by the number of claims in the group;

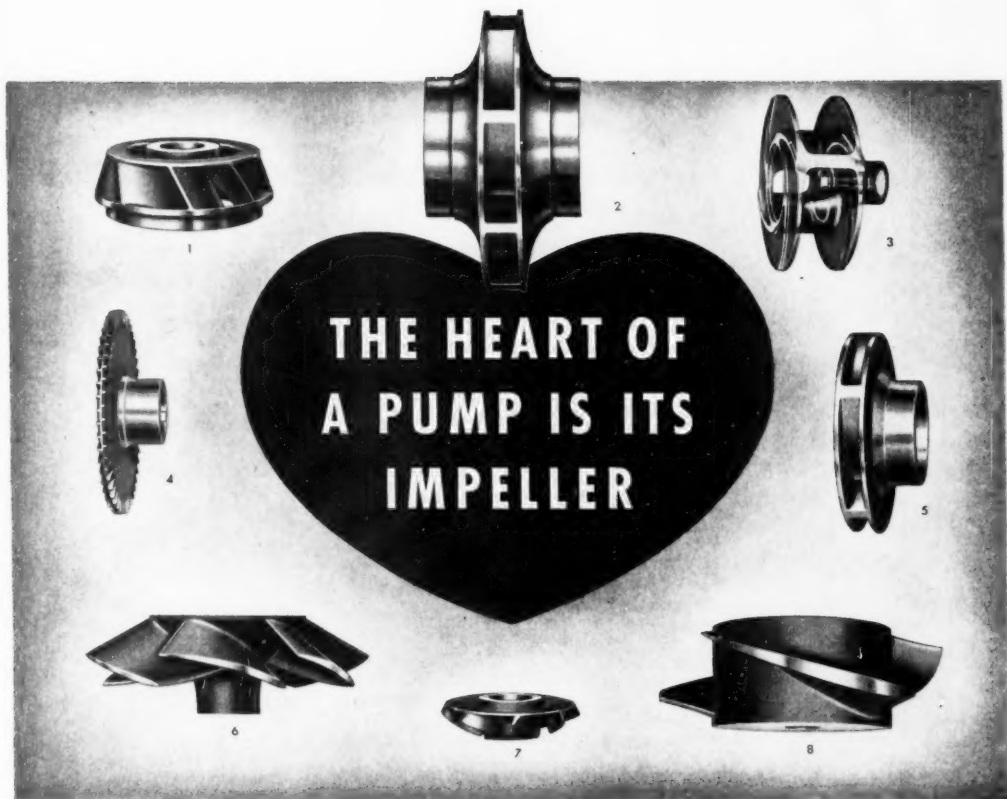
6. Raise the amount of annual expenditure required since the amount of development work which can be performed for \$100 is now negligible and cannot be expected to accomplish much;

7. Substitute an annual tax in place of assessment work; then hold such taxes in a special fund for expenditure on roads, etc., in the particular district, which would help all property holders.

It is the feeling that annual assessment work, as it now stands and is performed, is a useless gesture that accomplishes little towards exploitation of the nation's hidden resources. This is probably the prime reason why Congress so readily passes up the requirement. However, declaring a moratorium each and every year is not the answer and is only postponing the finding of a more satisfactory method for discovery and development of new resources.

Charles F. Willis

MINING WORLD



Peerless Pumps utilize many different impeller designs to meet various fluid conditions

What makes a pump "tick?" Its heart is an impeller!

Pictured above are eight Peerless impeller designs for varying fluid conditions. No. 1 forces water upward from deep wells. No. 2 is a double suction design for high capacity horizontal pumps. No. 3 pumps solids in suspension. No. 4 handles all liquids in small capacities, at high heads. No. 5 is of single suction design for process services. No. 6 combines both radial and axial flow. No. 7 is a semi-open impeller for small diameter deep wells. No. 8 is an impeller that "propels" large liquid volumes.

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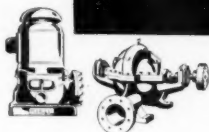
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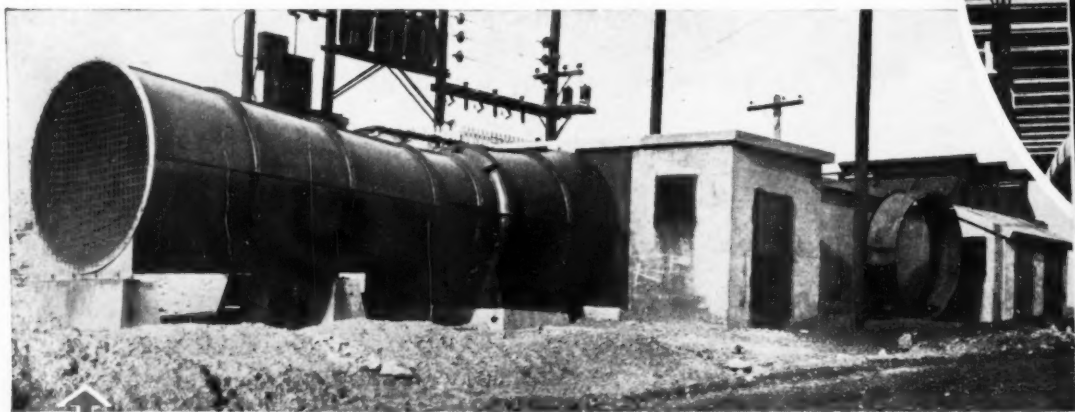
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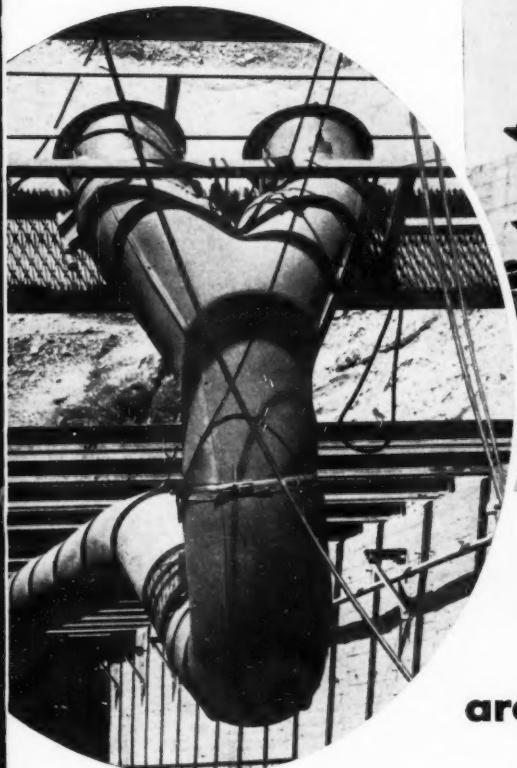
IF MAIN VENTILATION is your Problem
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Right: a twin installation of Type I-21
JOY AXIVANE Blowers at a large
metal mine.

BLOWERS

Below: the same twin units, looking
down. Left, opposite page: a typical
JOY AXIVANE Exhaust Mine Fan
installation, at another metal mine.



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SMALL MINERS ADVISED TO WATCH DAVIDSON WHO APPEARS TO DICTATE INTERIOR POLICY

Congressional hearings on H. R. 976, the Murray-Engle bill for mine incentive payments, were punctuated by considerable fireworks, according to reports from Washington.

Assistant Secretary of the Interior Davidson insisted upon relying on the Truman-Spence stabilization bill (H. R. 2756) for the authorization of selective incentive contracts instead of discussing the bills before the Engle subcommittee. After an acid exchange of remarks between Davidson and members of the committee, (during which Representative Barrett of Wyoming characterized the Spence bill as being an abject abdication of power should Congress pass it, and Representative Lemke of North Dakota remarked that the bill would completely socialize the United States), Chairman Engle reminded the witness that H. R. 2756 was not before the Committee on Public Lands and that if it were, he doubted it would ever be reported. He then asked Davidson to get down to the bills in question and to suggest what language the Interior Department thought might improve the measure.

Davidson presented the subcommittee with a draft of a bill covering exploration only, by individual contracts, the operator to match funds 50-50 with the government. Bureau of Mines Director James Boyd was called to testify that the selective contract system would be cheaper, more efficient, and easier to administer than the Murray-Engle bill.

Chairman Engle and other members of the subcommittee stated that in their opinion the Interior Department's plan is ready-cut for the large mines and that it is doubtful if the small marginal mines would get any contracts. The difficulties of handling hundreds and perhaps thousands of contracts, arranged to suit the particular mine, with cut-offs and escalator clauses, were pointed out. Also the army of lawyers, engineers, analysts, accountants and inspectors who would be required to examine and contract with mines on an individual basis. However, the witnesses for the Interior Department appeared unimpressed, according to one of the Congressmen who attended the hearing.

A number of times Chairman Engle pointed out that there appeared to be little fundamental difference in objectives of all concerned, merely in

the mechanism to gain those objectives. He suggested that it should not be too difficult to reach a reasonable compromise satisfactory to both the administration and industry.

● New Proposal on Assessment Work Made

The bill to suspend assessment work for another year may not pass as readily this time as former bills have. Senator James E. Murray of Montana probably has the better approach to this problem in his S. J. Res. 57, in which assessment work would be delayed for a time, the deadline being moved up from July 1 to September 30, with the plausible reason that severe weather conditions have delayed the work. This approach seems much more logical than the blanket suspension for a year which has been coasting through Congress time after time with no real excuse for giving locators a free ride.

● Credit Goes to Senator Malone

Cutting the suspension of the copper tariff from two years to 15 months is a feather in the cap of Senator Malone of Nevada. The slackening market and the reduction possible under the Trade Treaties Act undoubtedly lessened resistance to the cut, but it also proves you don't know what you can do until you try.

● It's On the Calendar

The McCarran gold mine relief bill, S. 45, is on the Senate calendar awaiting action. Although the major need for this measure, especially the moratorium feature, has passed, it still can do substantial good in many cases.

● Settlement Bill Has Chance

There seems to be a better chance of getting contract settlement legislation for mining at this session of Congress than previously. It has been pointed out in these pages a number of times that while it is perfectly possible for the government to grant the mines all reasonable relief under the terms of the Contract Settlement Act of 1944, the agencies involved simply would not do so. Hence the necessity for such clarifying bills as H. R. 834 and S. 241. H. R. 834 is on the House Calendar awaiting clearance from the Rules Committee. S. 241 still is being studied (at the end of March) by a subcommittee of Sen-

ator McCarran. Senate Judiciary Committee which, it is now stated, expects to move on the bill shortly. An amendment to extend the effective date is being pressed by some mining interests.

● Reed's Gold Bill Indicates Trend

The increasing interest in gold legislation is indicated by the new bill by Representative Reed of New York, H. R. 3262, which is designed to remove the restrictions upon gold and the circulation of gold coin. It is to be noted that Dr. Hjalmar Schacht, the Nazi financial wizard (than whom perhaps no one is more familiar with the intricacies of paper money manipulations), recently came out flatly for the restoration of the old-fashioned type of gold standard as being the "solution of the world crisis."

The Reed bill goes into great detail, as do many similar bills, in adjusting the weights and values of the coins, arranging the Federal Reserve ratios of reserves and other matters. It does not, however, solve the basic difficulty with all of these bills: that is, take account of the Administration's opposition largely engendered by the powers Congress has abdicated to world financial organizations, and the various artificial standards of exchange resulting therefrom. So the chances are it will get nowhere.

● Lewis Pays Big Price

The move of John L. Lewis in calling a strike ostensibly to protest the presidential appointment of James Boyd as director of the Bureau of Mines backfired in two directions. First, it accelerated the confirmation by the Senate Committee on Interior and Insular Affairs and later by the Senate; and second, it may radically change the congressional approach to revisions of the Taft-Hartley Act. The C.I.O. is said to be furious with Lewis because of the latter possibility.

A long time ago in these pages it was suggested that the best way out of the Boyd-Lewis embroglio would be to set up the B. of M. Safety Division as a separate bureau. If this had been done the affair need not have developed so seriously. Now Senator Ed Johnson of Colorado has such a bill before Interior and Insular Affairs and the committee will not act on it. What price Lewis?

● Spence Bill Should Be Studied

The Spence bill, H. R. 2756, so far has not caused nearly the stir it

(Continued on Page 59)

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ROCK BITS



The headframe that the open pit at Bagdad is putting out of business, a casualty of improved mining.

By A. E. Millar*

Inspiration Consolidated Copper Company
Inspiration, Arizona

WHY CHANGE TO OPEN PIT?

The answer to this question is set forth in this up-to-the-minute article. Costs and progress in shovel and truck design are important

One of the recent interesting developments in the mining field in the State of Arizona has been the start of open pit operations at three of the copper producing properties. In alphabetical order they are:

Bagdad Copper Corporation, Bagdad, Yavapai County (about 120 miles northwest of Phoenix).

Inspiration Consolidated Copper Company, Inspiration, Gila County (about 90 miles east of Phoenix).

Kennecott Copper Company, Ray Division, Ray, Pinal County (about 80 miles east and a little south of Phoenix).

All of the above properties have been producing units for many years, but solely by underground methods. Common to all has been the type of mining, namely, block caving.

In all cases the advent of pit mining has not been caused by the discovery of new ore bodies; rather, it has been decided that for certain reasons it was desirable to recover sections of the already known ore reserves by open pit rather than by underground. At both Inspiration and Ray the open pit mining will supplement underground mining; however, at Bagdad, production will come from the pit only, no further underground mining being contemplated.

Why Change to Open Pit?

The above question has been asked many times. Why have three properties recently started open pit opera-

tions and why did they not do so many years ago? It is only within recent years that improvement has been made in pit equipment which today permits the mining of small areas by open pit methods. Improvement in power shovels such as the full revolving shovel with tractor treads provides greater flexibility, also truck haulage has advanced to such a point that steep grades can be negotiated.

Certain factors which affected the adoption of open pit mining are common to all three properties.

Costs—Although other factors have considerable bearing, the main factor is cost of mining and delivering ore to the plant. The actual cost of mining ore by open pit is controlled

by several factors, chief among which are waste to ore ratio and transportation of waste and ore.

The charge against each ton of ore mined must bear not only the actual cost of mining the ore but also the cost of mining and removing the waste. For instance, assuming that it costs 20c to mine a ton of material, be it either ore or waste, with waste to ore ratio of $\frac{1}{2}$ to 1, the cost against the ton of ore would be 30c, but if the waste to ore ratio is 3 to 1, the cost against the ton of ore would be 80c. The other main factor mentioned is transportation. This cost can increase greatly due to the length and grade of haul. It matters little whether the grade be up or down,

This picture shows the Model E-40 "Tournarocker" in action at the Bagdad Copper Corporation. The haulage unit, which can be loaded by shovel or dragline, was especially designed for use at the Bagdad open pit by Le Tourneau and is the second purchased by the company. It has a capacity of 40 tons, is powered by a 300 hp. Buda diesel, and can be turned on a 15' radius.



* A digest of a paper presented at the 1943 Metal Mining Convention, Western Division, The American Mining Congress, San Francisco, California, September 20-21, 1943.

as either one adds greatly to the cost achieved for a level haul.

Unit costs for underground mining at all three properties have been and are considerably higher than open pit estimated unit costs. For instance, the cost of supplies, particularly timber, which is one of the largest supply items used in the block caving system, has increased to a point where under most favorable conditions timber costs alone approach 10¢ per ton and in mines where it is necessary to increase timber requirements because of heavy ground timber cost approaches 20¢ per ton mined.

From the above general statements and without going into further details, it is readily realized that cost is decidedly the influencing factor.

Tons Per Man Shift

Labor problems today are many and varied. Skilled labor is not too plentiful and men do not care to work underground as they did in the past. With the use of mechanized equipment available today, the number of men required for a given tonnage is considerably less in open pit mining than in underground. In tabulation No. 1 is shown tons per man shift achieved at several properties in underground mining as compared to that achieved and estimated in pit operations.

Tonnages and Grades

In all three mines the change to open pit operations has resulted in greater tonnage with a lower overall grade of copper. This is understandable as lower mining costs permit lowering of the cut-off between ore and waste; also in the pit operation it is possible to recover considerable "fringe" ore lost in block caving. The increase in tonnage is a great influencing factor. On the other hand, the decrease in overall grade is not serious provided it can be mined, beneficiated, and sold at a profit. On the other side of the picture consideration must be given that in many cases the increased tonnage and lower overall grade may necessitate an increase in plant facilities to maintain the production rate of copper.

Calculation of tonnages and grades is influenced by overall slopes, cut-off between ore and waste, and lowering the cut-off provided the material would have to be removed in any case. In the three properties under discussion the slopes are figured at 45 degrees with the exception of Bagdad where it is 55 degrees; the cut-off between ore and waste is 0.6% total copper; and it may be possible to go to 0.4% copper as an economic cut-off provided plant conditions and market price might warrant it and also provided that material (between 0.4% and 0.6%) lies within the pit limits and must be removed.

In the economics of calculation it must be remembered that most of the material classified as waste at all

three properties carries some values in the form of oxide (soluble) copper. Provision has been and will be made for the disposal of this material so that some recovery may be made at a later date by heap leaching.

The above factors have been considered as being common to the three properties. Other factors that apply to each individual property must be treated separately.

Bagdad

Several years ago when block caving started it was only necessary to

furnish 300 tons of ore daily, the plant capacity. In order to operate as cheaply as possible, no grizzly level was installed between the undercut and main haulage levels.

The area developed was limited. Early in 1943 the concentrator capacity was increased to 2,500 tons daily. It was found impossible to obtain the required tonnage under the existing conditions; it was found also that in the desire for tonnage heavy drawing in the caving area caused funneling to the surface which resulted not only in dilution but also

Top: An array of machines hard to beat is this 1400 P & H shovel loading into Dart trucks capable of carrying 23 to 25 tons payload and a Caterpillar D-8 crawler tractor working at Inspiration. In the foreground is a water sprinkling truck wetting down the road to minimize dust conditions. Center: A pair of Caterpillar D-8's equipped with bulldozers pulling and pushing a ripper to loosen ground in a sidehill cut for a bench approach road at Inspiration. Bottom: A Dart haulage truck carrying about a 25-ton payload backed in at the Traylor 42" gyratory crusher and ready to dump at Inspiration. The second truck is approaching the crusher from the pit over the 7 percent grade of the main haulage road.





Two of the Bucyrus-Erie 29-T churn drills at Inspiration used for drilling 9" diameter holes for blasting. Bench height is 50'. Holes are drilled 5' below grade making an average depth of hole of 55'.

in the drawing of close to the surface oxide material detrimental to mill recovery.

The mineralized area at Bagdad consists of oxide copper ore for about the first 60', chalcocite for 100', then a primary (chalcopyrite) zone for 100 to 150'. Open pit operations permit segregation of the ores, the oxide being removed to dumps where it can be leached at a later date, and the relatively clean sulphide shipped to the mill. With the flexibility in pit work it will be possible to increase the tonnage as may be required by expansion in plant facilities.

Inspiration

Up to 1928 beneficiation of ore was by flotation-concentration, but since 1930 leaching has accounted for practically all of Inspiration's output, a small section of the original concentrator being used for the treatment of slimes.

Inspiration's ore bodies are a mixture of sulphide and oxide copper minerals, and to produce the required monthly production, control of grade and the proportions of sulphide and oxide ore is essential. Open pit mining with its flexibility assists in combining with underground mining for such control.

TABLE NO. 1

	Tons per man shift	
	Underground	Open pit
Bagdad	21	65 (will increase)
Inspiration	30	90
Kennecott-Ray	25	80-90 (estimated)

Kennecott-Ray

The ore bodies at Ray are divided into area No. 1 (on the east) and the adjoining area No. 2 (to the west). The eastern half of area No. 1 has been mined out and the west half of area No. 1 is that which will be removed by open pit. Underground mining continues in area No. 2.

To remove the west end of area No. 1 by caving it would have been necessary, due to the dip of the ore body, to open and maintain several levels which in turn would add to an already high underground mining cost due to heavy ground.

The Bagdad pit during the early stages of development. The shovels are Bucyrus-Erie's with $\frac{3}{4}$ cu. yd. shovels and the trucks employed were of 10 cu. yd. capacity. These machines are a far cry from the equipment of today.



Plan of Operation

Up to this point this paper has been concerned only with economic factors which have influenced the adoption of open pit mining at these three properties. Before closing it would be opportune to consider the factors influencing the plan of operation and type or size of equipment. Such points as overall slopes, shapes of areas involved, preliminary stripping required, waste to ore ratios, and grade cut-offs, are of utmost importance and must be given careful consideration. However, time will not permit the discussion of such in this paper.

Shovels and transportation are two of the important items in pit equipment, and are closely related. The size of shovel and size of dipper are controlled by such factors as tonnage required, class of ground, height of bank, and size of crushing equipment.

Closely related to shovels is the question of transportation. Transportation is usually by rail, truck, or belt conveyors; chief among the influencing factors are size of ore body, depth of ore body, length of haul and how much grade haulage is involved. Rail haulage can only be applied when the size of the ore body warrants its use. It is usually desirable to keep the railroad grades to a maximum of 4 percent, and it is practically impossible to use railroad haulage in the smaller pits and especially in those which vary greatly in elevation. Other requirements for railroad haulage are a long haul and a total daily tonnage of sufficient quantity to justify the investment in necessary track installation and rolling equipment.

In deciding upon the use of trucks, one of the main points to be given careful consideration is the grades. Naturally, it is economical to handle as large a payload as possible. On the

other hand, truck haulage has been limited due to the available size of power units. Diesel operated equipment is much more economical than that operated by gasoline, but diesel automotive power is limited at present to a maximum of about 275 hp. At the present time, certain companies are experimenting with units of 300 hp. or larger.

One of the proved power units of 300 hp. is that using butane or propane gas. There is a great field for the development of heavier diesel equipment. Belt conveyors are very useful, especially when removing ore over a grade exceeding 10%. Conveyors can operate up to an incline of 18 degrees or 32%. However, in using belt conveyors for open pit mining operations some type of crusher should be installed in the bottom of the pit, thereby assuring a controlled size of material.

Below is discussed briefly the plan of operation of each of the above-mentioned properties.

Bagdad

Open pit operations were started in 1945, the ore being transferred from the through raises to the underground haulage level. The tram on the underground haulage level was 1,200' to the hoist, at which point the ore was raised to the crushing plant, a vertical height of approximately 340'. In this way the daily requirements for the mill were met. However, the cost was still too high as the chute tapping, underground haulage, and hoisting added much to the cost of open pit mining. In 1947 a jaw crusher was placed in the bottom of the pit and the ore, after passing through, was raised to the plant crusher by means of a conveyor. Recently it was possible to eliminate the underground transfer. Now 3,000 tons daily is being trucked to the crusher in the pit bottom and carried by conveyor to the plant.

The crusher in the pit is jaw type, 40 x 42", and has a capacity of 3,000 tons in 12 hours, crushing to 6" size. This crusher discharges by means of a short conveyor into storage bins excavated out of rock having a live storage of 8,000 tons, or sufficient for two days' operation of the mill. The crusher is placed on a solid concrete foundation, and it is estimated that it will be necessary to move the crusher once every four or five years. The conveyor is 1,000' long and rises at an angle of 17½ degrees. The material is handled on a belt 36" wide. The section of conveyor in use at present will be permanent, and as the pit advances and it becomes necessary to move the crusher, temporary sections of conveyor belting 1,000' long will be placed on the bottom level of the pit to carry the material from new locations to the 8,000 ton storage. At present the cost of crushing and conveying approximates 3½¢ per ton.

Waste removal will either be a level or uphill haul, and a great amount will have to be moved over steep grades, resulting in higher haulage costs. Waste dump areas are limited. The original ore body for underground mining was estimated at 6,000,000 tons of 1.25% copper. Diamond drilling has added additional ore until it is estimated that about 18,000,000 tons of ore of 0.9% copper ore is available. Additional drilling will be carried on in the hope that this amount can be increased.

The mill can handle about 3,000 tons per day, and plans are being made to add immediately one additional ball mill which will permit the treatment of 4,000 tons daily. Eventually, it is hoped that sufficient equipment will be added to bring the capacity up to 10,000 tons per day. Ore is being loaded by 2 or 2½ cu. yd. shovel into 10 cu. yd. trucks and hauled to the crusher. Waste is loaded by a 4½ cu. yd. shovel for removal to the dumps. It is expected that 20 cu. yd. trucks will be available in the near future for waste removal.

Inspiration

The study of open pit operations was not carried out with any thought of increasing the total tonnage. In other words, no plant changes were contemplated nor are any contemplated. The areas involved in the program have increased ore reserve a little but not to any great extent. Combined grade of open pit with underground ore will average about 1 per cent copper. It was decided to use shovels of 4 or 4½ cu. yd. capacity, each of which should deliver between 4,000 and 5,000 tons per shovel shift.

One of the main problems involved was the question of how to deliver the ore. Three possible methods were considered. One was by opening one of the existing large underground ore passes. The second possibility given consideration was the transporting of

material by belt conveyor. The third scheme, and the one adopted was trucking, which proved to be the most adaptable and economical and which also resulted in a much simpler operation. Under this plan the bench approach roads come from the respective benches as required and join the main haulage road placed outside the pit on a 7% upgrade.

Another problem at Inspiration was that the main coarse crushing plant, adjacent to the Main Shaft, could handle ore up to only 12" in size. This necessitated the installation of a 42" gyratory crusher as a pit primary crusher. The location of the pit ore bodies is on the south side of Inspiration ridge and the main treatment plants are on the north side of Inspiration ridge. By making a heavy cut through a saddle in this ridge, the main haulage road was constructed, continuing the 7% uphill grade until it arrived at the pit primary crushing plant. From this point the ore is conveyed to storage bins and from the storage bins railroad cars haul to the Main Shaft coarse crusher. Trucks of 24 net tons capacity powered by large sized diesel engines negotiate this 7% grade at approximately 9 miles per hour.

Kennecott-Ray

At the Ray Mines Division of the Kennecott Copper Corporation before starting stripping operations it was necessary to divert the flow of surface water in Copper Canyon which flowed directly over the orebody from west to east. This diversion was accomplished by cutting a channel and building a dam to permit the seasonal flow of water discharging into another canyon outside the ore zone.

Most of the waste will contain some oxide which will be placed in areas where heap leaching can be practiced at a later date. The waste removal does not present a great problem as sufficient areas for dis-

Shot showing the pit Bagdad in the early stages of development. The tractor is a Caterpillar D-8 with Le Tourneau cable dozer.



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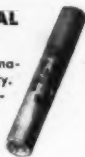


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MINING WORLD

posal are within a reasonable distance of the pit. Part of the waste will be placed in the caved area over section No. 2, mentioned previously, part will be carried to the west, and part to the southeast. The maximum length of haul will be to the southeast, a distance of approximately one mile.

Practically all of the waste will be removed on a more or less level haul with some of it going up a slight grade. Ore, on the other hand, will be hauled almost entirely up hill. It is expected that the main body of ore will be found just below elevation 2,100 and will continue to the bottom of the pit at elevation 1,700. It is planned that roads for ore will be held to a maximum grade of 6% inside the pit and will be carried on a 4% grade outside of the pit. To crush pit material a jaw crusher will be installed close to the present plant. This crusher will be 60 x 84", and the 8" product will be conveyed to the present coarse crushing plant where it will follow the same flow sheet as is followed by the underground ore.

Ray's present production is about



Showing the small machines used in 1946 during the early development of the Bagdad open pit. This close-up shot pictures a Bucyrus-Erie shovel with a $3\frac{1}{2}$ cu. yd. dipper loading into a Euclid dump truck with 10 cu. yd. body powered by a 150 h.p. Cummins diesel engine.

6,000 tons per day and as soon as maximum production is possible from the pit it is planned to reduce underground tonnage, supplementing this with sufficient ore from the pit to make a combined production of 15,000 tons per day.

Appreciation is expressed to the respective managers of the three properties, E. R. Dickie, P. D. I. Honeyman and Robert W. Thomas, for their cooperation in furnishing data for the preparation of this article.

NORWAY IS COMPLETING GIGANTIC GERMAN WAR PROJECT TO EXPAND HER ALUMINUM INDUSTRY

During the Germans' occupation of Norway, they conceived vast plans for the harnessing of Norwegian water power to serve their war industries. The largest of these projects was the one whose execution was entrusted to A/S Nordag, a German firm established in May, 1941.

The realization of this project called for power developments amounting to a total of 600,000 kws., to be devoted mainly to the production of alumina and aluminum. Two of the largest of these schemes were those at Sunndalsora, with 200,000 kws. to produce 120,000 tons of alumina and 60,000 tons of aluminum, and at Ardal, with 115,000 kws. to produce 60,000 tons of alumina and 30,000 tons of aluminum.

As early as 1942, the Germans realized that the program was too vast, and plans were substantially reduced. Even so, one billion kroner had been expended by the time they capitulated.

After the liberation, the Norwegian Parliament assigned the assets of the German firm to a new state-owned company, A/S Ardal Verk. These assets consisted, apart from installations in Ardal proper, of much equipment in places where the Germans had been active. In the last phases of the war, they had centered their activity at Saudasjoen, where

they placed in operation an alumina plant which, in 1944, had a production of 10,000 tons. When shut down in December of that year, it had achieved a capacity of 15,000 tons which could be quickly increased to 30,000 tons.

The principal holdings of the new company, however, were at Ardal, where their activities have been centered. Road communication between Upper and Lower Ardal was established during the war by construction of a modern highway passing through Norway's longest road tunnel, 800 meters long. The Germans were attracted to this remote area by the readily available power. A power development was so far advanced that only the power plant proper remained to be built, and a station with a capacity of 90,000 kws. could be set up at small cost.

At the time of liberation this power station, placed 100 meters inside a mountain, was nearly completed, with three of the six generating sets ready for operation. Work on two more sets was also in an advanced stage.

In Upper Ardal, one 12,000-ton capacity furnace house for aluminum production was completed, and the electrolytic cells were being installed. A second furnace house was also under construction.

In Lower Ardal, erection of a plant

to produce 50,000 tons alumina per annum by the Pedersen process was envisaged. At the liberation, one furnace was nearing completion, and work on a second had been started. Quays, warehouses and other necessary buildings were in various stages of construction.

The new company's most urgent task, however, was to complete the first aluminum plant, with auxiliary installations, at Upper Ardal and start production. This accomplished, production was started in February, 1948, at the rate of 10,000 tons annually, with an ultimate 12,000 tons planned. Seeking a solution to the raw materials problem, the company secured under a contract with Aluminum Union, Ltd., of Canada the requisite supplies of alumina for the next 15 years, for which payment will be made in raw aluminum.

The new company is now concentrating on completing the second furnace which is expected to go into production by January, 1950. By that time the company should have a capacity of 20,000 to 24,000 tons of aluminum per annum.

Through the co-operation of two companies, Christiania Spigerverk and Bremanger Kraftselskab, the first three phase furnace at Lower Ardal will be applied to the production of a special pig iron containing vanadium. This furnace will have a capacity of 25,000 to 30,000 tons annually, and a project now under discussion provides for completion of a second and third furnace within a few years.



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Crazy-Quilt Policies

Our older readers will remember the fad of a generation ago when quilts were pieced together without color scheme or pattern to make a crazy-quilt. That is the only word that will properly describe the contradictory policies of our different governmental Departments and Bureaus, and even of Congress itself. The mining industry has been a chief sufferer in this confusion.

A few weeks ago the President condemned the German cartels, and said that they would all be dissolved. Directly opposed to this attitude is the favoritism that certain elements of the State Department have shown to the Mercurio Europa of Spain—the most vicious of all cartels. This favoritism was fully disclosed by the MINING WORLD, March, 1947, in the article titled "We Financed Franco." Spanish mercury was bought at a bonus price over that set on American offerings. This gave Mercurio Europa a favored position in the U. S. market. Since the war, Mercurio Europa by price manipulation has kept control of the market, forcing American mines to close, so that today only one high-grade mine is operating. A U. S. industry killed by the bungling of what might be called trade amateurs. This is the mildest statement that might be made.

Under the easy requirements of the basic mining laws of the U. S. the mining industry has given us the greatest mineral development that the world has ever seen. The prospector has always been our mainstay in mining, for the prospect hole of today is the forerunner of the producing mine of tomorrow. This great development can be continued if it is not hamstrung by the present encroachment of bureaucratic regulation.

In recent years we have heard repeated statements that the United States has become a "have not" nation in the matter of mineral reserves. If this is true, it is natural to suppose that all the affected agencies would be planning how to stimulate prospecting and the search for mineral deposits. Here again we find the same strange contradiction in policy. It so happens that those who are most vociferous in the "have not" idea are largely the same parties who wish to put new restraints on freedom of action in mineral development, and some are also badly touched in the matter of foreign economic ideologies.

It has been suggested that a system of leasing be adopted for all mineral operations on national public lands. The Indian Bureau has adopted such a system on the Indian reservations. From the result of this system there one can readily see how a leasing system would affect general mining. There are hundreds of known mining possibilities on Indian lands, but, aside from oil operations, there is little mineral development on the reservations.

It is a well-known fact that very few prospectors ever make for themselves even half as much as the daily wage of men of equal experience in other industries. If the same 10 per cent royalty that is demanded on reservation lands is to be applied to all public lands, it is easy to see that this added expense would kill off all prospecting for minerals. The proponents of the leasing system evidently recognize this fact, for they have also suggested a new plan under which the Government would undertake to do all mineral prospecting. They have estimated the cost of this work would be some fantastic sums in the millions of dollars per year. Under the old system the prospecting has cost the Government nothing. Private enterprise has brought the great mining development that we now enjoy. Under these circumstances do the new plans make sense?

The Wanderer
MINING WORLD

SCOTT BAR AND GOLD BLUFF

California's early-day miners were eager but inexperienced. For the most part, they arrived at the diggings minus equipment, and with only the foggiest idea of how to proceed. Gold was scratched from the earth with whatever implements came first to hand by men who rushed feverishly from one new strike to the other, abandoning good prospects at the rumor of a bigger bonanza over the mountain.

In the Northern Mines of Siskiyou and Trinity counties, the atmosphere of confusion was intensified and the lack of foresight particularly evident. In this remote and rugged region, the development of mining was so retarded that rockers were still in use on the Klamath River in 1856, years after they had been generally discarded elsewhere.

By the summer of 1850, however, despite tremendous difficulties of transportation and supply, more than 2,000 men were working the newly discovered Trinity mines. In June, a party crossed the mountains from the North Fork of the Trinity to the South Fork of the Salmon River where they struck placers of notable richness. Another group followed the Klamath as far as Happy Camp where they also made a strike before being driven off by hostile Indians.

They returned with such glowing tales that a third group started up the Klamath in search of two-ounce diggings. This party finally reached, and camped at, Hamburg Bar, a half mile below Scott River, but missed seeing the Scott owing to the bend in the river where it empties into the Klamath. Incidentally, these combined discoveries saved the day for the new towns on Trinidad and Humboldt Bay, towns which had mushroomed under the mistaken belief that they offered easy access to the Trinity diggings.

Soon, men were working every bar, creek and gulch along the Salmon River, and the Forks of Salmon boasted a metropolitan population of 700 persons. From here, John Scott decided to investigate rumors that in 1849 a party of soldiers had found gold on a river that lay over the mountains. This river, according to an old trapper, was "the richest place for beaver I ever saw."

It was rich in gold, too, as Scott and his men found when they started panning along a bar in the river. Almost immediately, however, the Indians became so threatening that the party thought it prudent to with-

draw. Furthermore, winter was coming on, and fear of snowy isolation was causing a general exodus from the Klamath and Salmon mines. Only 50 men spent the winter at Forks of Salmon, and Scott must have been one of this intrepid crew, for, in December, he returned to Scott Bar with a party of 21 men. From this time on, John Scott drops completely from history, although a mountain, a valley, a river and a town still bear his name.

Those miners who feared the winter of '50-'51 were more than justified. It was later known as the "starvation times on the Salmon." Heavy snows late in March blocked all supply routes for weeks, just at the time when the population had been augmented by refugees from the Gold Bluff excitement on the coast.

This fantastic magnet to the fortune hunters had a certain basis in fact. In May, 1850, a party going up the shore line from Trinidad Bay to the new town of Klamath City, found gold in the sands of Ocean Beach. The gold was mixed with gray and black sand, and apparently had been washed down from a black bluff, several miles long and 400 feet high.

In due course, two men started operations at Gold Bluff in a modest fashion, but there was nothing modest about the reaction when news of this beach of gold reached San Francisco. The Pacific Mining Company was formed to exploit the almost

unheard of riches. Shares were sold, ships outfitted, and lightning calculators began to figure. Contemplating the amount of sand on the beach, it was estimated that each shareholder could expect \$43,000,000. There was danger that gold would end up by being worthless.

When the first shipload of future millionaires landed at Ocean Beach, however, they were met with dismal tidings. It had proved practically impossible to separate the gold from the black sand. Furthermore, only during certain times of the year was the gold visible at all. The excitement collapsed as quickly as it had begun, but most of the adventurers, having come this far, swarmed on to the Salmon River, with empty stomachs and no supplies, dangerously overtaxing the already precarious food situation.

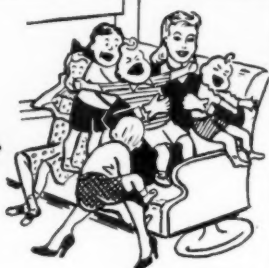
Some of the starving miners eventually staggered over to Scott Bar, arriving there just in time to join the rush to Yreka. For, although Scott River placers lay rich for the panning, they paled beside the rumored wealth to be found on the newly discovered Yreka flats. Scott Bar was almost deserted, but not for long. Soon, some of the fickle returned, other newcomers arrived, and the town settled down to its long career as one of the important camps in the Northern Mines, and the center of all mining activities on the Scott River.

The original town was across the

Scott Bar and a scene on the Scott River during the days when the Chinese were active. This picture, taken during the 1890's, shows a number of the wooden water wheels used to raise water to the wooden flumes in order to get a head for washing gravel.



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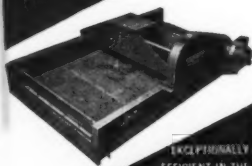
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Fresno, Kern, Riverside—\$2.50 - \$5.
 Los Angeles—\$1 and \$3.
 Siskiyou—\$2 and \$4.
 Inyo County, \$15; E or W 1/2, \$7.50; San Bernardino, 73 x 110, \$15; No. or So. 1/2, \$7.50; NW, SW, NE, or SE 1/4, \$3.15.

WORLD'S MINERALS

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river from the present-day site, but after a year, the camp changed sides, and for the next quarter century a ferry provided transportation from one bank to the other. A Sydney woman opened a hotel, a theater was built that offered such illustrious entertainers as the Chapmans and little Lotta Crabtree, and, in addition, Scott Bar had its famous hurdy-gurdy girls, many of whom later married and settled down to become prominent pioneer women. On Saturday nights, the girls and their escorts rode from dance to dance at every camp for miles up and down the Scott and Klamath rivers.

Although little gold was ever found above Scott Bar, the three miles between it and the Scott and Klamath rivers are estimated to have yielded \$35,000,000. All the ground was rich—"pound pieces were common"—and it was prospected three separate times, last and with traditional thoroughness, by the Chinese in the '90's. Wingdamming was done extensively, and so many huge waterwheels turned in the river that they became almost a trademark of the camp.

It is assumed that most of the Scott River placers were washed down from the huge mass of rock, directly opposite Scott Bar, known as Quartz Hill. Quartz Hill, formerly the "Frenchman's Claim," was the richest on either of the rivers, with a clean-up twice a day. It has been worked steadily—with the exception of the recent war years—since 1850, by methods ranging from simple panning, through hydraulic mining, now, open-cut mining. The Scott Bar nugget, a wedge-shaped piece of gold weighing 15 pounds, was dug out here by two men who followed the usual practice of sending their haul into Yreka by mounted express. Unfortunately, they selected the day that the express company went bankrupt. When news of the business failure reached Scott Bar, the outraged miners set out after the messenger, and, eventually, through a mixture of force and persuasion, they managed to retrieve their nugget from the company vaults.

A bearded German named Dick, or "Lord" Hetschel, also struck it rich on a Quartz Hill claim. Having made his pile, he turned the claim over to the Scott Bar barber, and went back to Germany, traveling in great state, with a henchman to ride before his carriage and herald his arrival in each town. But life in the grand manner proved more expensive than he had reckoned, so, in due course, he turned up again at Scott Bar, where he tried, unsuccessfully, to retrieve his claim. He married, raised a family of seven daughters, and amused himself by composing music, including a stirring salute to the Free Bridge that, in 1875, replaced the Scott Bar ferry. Eventually, embittered by failure to recoup his fortunes, he committed suicide at nearby Horse Creek.

MINING MEN AND THEIR ACTIVITIES

About men who are well known and prominent
in American metal mining circles

Dr. Phillip L. Merritt, geologist, formerly of Duluth, Minnesota, is now assistant manager of the raw materials operations, U. S. Atomic Energy Commission.

A. L. Fairley, Jr., of Pittsburgh, Pennsylvania, was recently appointed assistant to the president of the Snyder Mining Company which operates three iron mines on Minnesota's Mesabi Range.

Joseph Hafen, president of the Old English Gold Corporation, has changed his address from the company's operations at Ely, Nevada, to 408 South Fourth West, Provo, Utah.

Philip W. Peter recently accepted the position of mining engineer with the U. S. Gypsum Company at Plasterco, Virginia.

E. Henry Gapsch, manager of the Washington Iron Works dredge at Sunbeam, Idaho, is now residing at 701 East 18 Street, Vancouver, Washington.

Douglas B. Christison, manager of the Nick Lentine mine at Chloride, Arizona, recently returned from Kingman and may be addressed at Box 214, Chloride.

Jack Q. Jones is now mineral dressing engineer for the Tennessee Copper Company and may be addressed c/o the company at Isabella, Tennessee.

Gilbert C. Davis, director of labor relations for Phelps Dodge Corporation at Douglas, Arizona, retired recently from active service with the company. Davis had served in this capacity since early in 1946 prior to which he was manager of the corporation's Morenci Branch during the development and construction period. He is succeeded at Douglas by W. J. Uren, assistant director of labor relations since 1944. Uren, who has been with the company for about 25 years, was previously chief engineer at the smelter of the United Verde Branch at Clarkdale.

Richard F. Moe has resigned his position with the American Smelting & Refining Company in Mexico to become mine superintendent for the St. Louis Smelting & Refining Company at Baxter Springs, Kansas.

Stewart Carpenter, chief engineer of the Douglas smelter, Phelps Dodge Corporation, Douglas, Arizona, has been assigned temporarily to the corporation's smelter at Clarkdale.

P. K. Hurlbut, Jr., mining geologist with the Eagle Picher Mining & Smelting Company, is now being addressed 733 "D" Northwest, Miami, Oklahoma.

N. N. Kohanowski, superintendent of the Caracoles District, Cia. Aramayo de Mines en Bolivia, La Paz, Bolivia, is taking a leave in the United States and may be addressed at 1041 Garfield Street, Denver, Colorado.

Clark Henry, mine superintendent for the Charleson Iron Mining Company at Virginia, Minnesota, recently returned from a trip to the Panama Canal Zone.

Herman J. Massie of Caspian, Michigan, has been appointed ore grader at the Verona office of Pickands, Mather & Company. He succeeds Thorsten Holmes, who was recently named range safety inspector, following the death of A. H. Trestrail.

Robert Wallace, manager of the Midvale, Utah, plant of the U. S. Smelting Refining and Mining Company since 1939, retired April 1 after 33 years of continuous service with the company. A 1905 mining and metallurgy graduate of Harvard, Wallace's previous affiliations were with the Cleveland Cliffs Iron Company at Ishpeming, Michigan, and the American Smelting & Refining Company in Mexico, among others.

Hugo L. Johnson has been appointed general superintendent of the Midvale plant, succeeding Robert Wallace. Johnson, who has been with U. S. Smelting Refining and Mining for the past 33 years, has been assistant to the manager since March, 1946. Concurrent with Johnson's appointment are the following promotions: Archie A. Nelson, formerly research engineer, has been appointed

assistant smelter superintendent, succeeding W. M. Whitecotton, who will remain at the plant as research engineer; F. J. Marshall, who began his career at the smelter in 1933, has been advanced to general blast furnace foreman, and Melvin J. Belich replaces Marshall as general roaster foreman.

Dr. Warren E. Wilson, president of the School of Mines and Technology at Rapid City, South Dakota, has been appointed to the State Natural Resources Commission, replacing Dr. F. C. Lincoln, resigned.

Gavin H. Young, former operator of the Granite gold mine near Valdez, Alaska, is now an engineer and geologist for the Blackbird Division of the Calera Mining Company at Forney, Idaho.

R. J. Bonnemort, who returned last year from the Philippines where he was chief engineer for the Benguet-Balatoc interests, is now superintendent for the Consolidated Eureka Mining Company at Eureka, Nevada.

George F. Chock, who has been active in western mining activities for the past 20 years, is now employed by the U. S. Bureau of Reclamation as field civil engineer in charge of construction of 230 KV Transmission Lines from Davis Dam. He may be addressed c/o general delivery, Kingman, Arizona.

Russell Fish, general manager of iron mines for the M. A. Hanna Company, has announced the following appointments: C. E. McManus and Earl S. Mollard to assistants to the general manager for Minnesota



BOYD GETS BACK PAY FROM 1947

In a ceremony held recently in the Interior Department auditorium in Washington, D. C., Secretary of the Interior J. A. Krug (left) presented back salary checks totaling \$12,000 to James Boyd, sworn in as Director of the Bureau of Mines on March 24, following his confirmation by the Senate. Dr. Boyd has served since August, 1947, under a series of recess appointments, although he had received no salary since December, 1947.

mines; Gust Weggum, formerly master mechanic for the Butler Brothers mines, to mechanical consultant for Hanna; O. J. Anderson, formerly Weggum's assistant, to master mechanic; Harry A. Larson, to assistant chief engineer at the Cooley mines, and George Borgeson, former supervisor of safety, to assistant claims manager.

George A. Tweedy, mining engineer of Los Angeles, is now with the U. S. Bureau of Mines at Platteville, Wisconsin.

Bliss Moore, vice-president and general manager of Sunset Minerals, Inc., Wallace, Idaho, was recently named temporary chairman of an association organized by Pine Creek mine operators to seek road improvements.

Ernest R. Rodriguez of Los Angeles has been assigned to duty with the Safety Branch of the U. S. Bureau of Mines at Phoenix. A 1939 graduate of the University of Nevada, he was formerly employed by various Arizona and Nevada mining companies.

Charles A. Kumke, previously mine superintendent at the Golden Queen mine, Mohave, California, and later superintendent of the Oil Shale mine at Rifle, Colorado, is now residing in Tucson, Arizona, where he is employed as a mining engineer in the Mining Branch of the U. S. Bureau of Mines.



WALTER L. MAXSON

vice-president of the Oliver Iron Mining Company.

Walter L. Maxson, vice-president of the Oliver Iron Mining Company of Duluth, Minnesota, has been appointed to the Atomic Energy Commission's advisory committee on raw materials, according to an announcement by John Gustafson, manager of the AEC's raw materials operations office. Prior to his affiliation with the Oliver company, Maxson was an associate professor of metallurgy at the Colorado School of Mines and also was connected with several mining firms in Colorado, Arizona and Australia.

Byron L. Johnson, assistant general manager of the Braden Copper Company, has returned to the United States after 20 years with the Chilean subsidiary of the Kennecott Copper Company. Currently, Johnson, a metallurgist of vast experience, is collaborating with Lionel E. Booth in matters pertaining to flotation

and general metallurgical consulting practice. He is making his home in Salt Lake City.

Carl Martin of Butte, Montana, has accepted the position of general superintendent at the new Ermont open pit gold mining operation near Dillon, Montana, now controlled by the Olamont Mining Company. Frank Stagg, also of Butte, and formerly with the Ermont Mining Company, will be in charge of the mining operations.

John A. Johnson, formerly of Ironwood, Michigan, has been appointed supervising engineer for the Duluth office of the health safety division of the U. S. Bureau of Mines. A graduate of the Michigan College of Mines at Houghton, Johnson was formerly employed as a mining engineer by the Montreal Mining Company and by the Republic Steel Corporation in Ironwood.

Arthur S. Hecht, consulting engineer of San Francisco, is now an associate of Behre Dolbear and Company, Consulting Mining Engineers and Geologists, 11 Broadway, New York City. Hecht recently returned from Korea and completed an assignment for the Civil Affairs Section of the Army and ECA for Korea as a consultant on a research project for tungsten ore beneficiation.

J. M. McDonald, mining engineer and geologist, has joined the staff of Silver Crescent, Inc., operating on

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- MOTOR GENERATOR SETS**
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1—35 KW. 250 v. DC. w 2,200 v. Motor. 50 HP.
- BALL MILLS**
3—86 Marcy. 225 HP. Motors. 440-3,600 cyc.
2—75 Marcy. 200 HP. Motors. 2,200 and 440 v.
1—76 Marcy. no motor
5—Tube Mills. 5 x 8, 5 x 13, w Motors
1—7 x 36" Hardings Conical. 125 HP. Motor
- PUMPS**
2—DeLaval Centrif. 1,200 g.p.m., 1,215' hd., 600 HP. Motor
4—Allis Chalmers 8" x 8", 1,400 gal., 290' head
2—Allis Chalmers 6" x 5", 200 g.p.m., 560' hd., w 100 HP. Motors
- ELECTRIC MOTORS**
1—300 HP., Allis Chalmers Ind., 2,200 v., 3 ph., 60 cyc.
1—225 HP., Slip Ring, G.E., 440-3,600 cyc., 430 r.p.m.
1—200 HP., G.E. Slip Ring, 900 r.p.m., 2,200-3,600 v.
1—250 HP., G.E. Ind., 600 r.p.m., 440 v., 3 ph., 60 cyc.
- LOCOMOTIVES**
4—Baldwin-West. Battery, 10 HP., 24" gauge
2—Baldwin-West. Trolley, 250 v., 5 ton, 24" gauge
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- MUCKERS**
2—Eimco 12, 18" gauge; reconditioned
2—Eimco 21, 24" gauge; reconditioned
- TRANSFORMERS**
4—833 KVA, 16,500 v. to 440 v., G.E.
3—25 KVA, G.E., Type OICS, 2,300-220 440 v.
1—100 KVA, 3-phase, Dry, 2,300-230 460, G.E.
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- CRUSHERS**
1—22" Symons Cone, Intermediate, NEW
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1—8" x 20" Blake Jaw
1—Allis Chalmers Crushing Rolls, 55" x 24"
- MINE HOISTS**
1—100 HP., Hendrie-Bolthoff, SD, 7,000# pull
1—80 HP., Davis, DD, w Motor, 750 r.p.m., speed
1—800 HP., Allis Chalmers, DD, Lilly Controls, w Motor; used to depths over 5,000 ft.
1—175 HP., Single Drum, Washington Iron Works, 700 F.P.M., w Motor
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1—IR Type XB-10, 9" and 15" x 12", 550 cu. ft., 2 stage; like new; w 150 HP. G.E. Motor, 440 v., 3 phase, 60 cycle
1—IR Type XCB-10, 9 1/2" and 15" x 12", 568 cu. ft., 2 stage

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1—4 x 8 Allis Chalmers Double Deck, w motor
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Moon Gulch near Wallace, Idaho. A graduate of the University of Washington, McDonald has spent the past several years in Alaskan and Canadian mine operations.

Roland M. Richmond, formerly mine foreman for the Tungsten Mining Corporation at Henderson, North Carolina, was recently promoted to the position of mine superintendent.

William G. Hogue has been named chief geologist for the Copper Queen Branch of the Phelps Dodge Corporation at Bisbee, Arizona, succeeding **Carl Trischka**, who has retired after 28 years service with the organization.

E. W. Felegy, mining engineer with the U. S. Bureau of Mines, Safety Branch, Salt Lake City, is currently visiting mining properties in Arizona in order to continue experiments started in 1946 to adapt radio to communication underground. Experimental equipment will be tested in several of the large copper mines in the state, the first time such an attempt has been made in Arizona.

William Langdon of Calumet, Michigan, was recently appointed captain of the Kearsarge copper mine of the Calumet & Hecla Consolidated Copper Company.

LeRoy Salsich, retired former president of the Oliver Iron Mining Company, Duluth, Minnesota, recently made an extensive tour of the iron mining districts of England and France.

Dr. John W. Gruner of the University of Minnesota's department of geology and mineralogy has been elected president of the Mineralogical Society of America.

Obituaries

James Winfield Crosby, 74, secretary of the Bunker Hill & Sullivan and the Alaska Juneau Gold Mining Company, died March 15 in San Francisco.

J. Corrin Barnes, 73, one time vice-president of the Goldfield Development Company and a director of Goldfield Deep Mines, died March 7 in Goldfield, Nevada. Prior to his Nevada mining activities, he was a professor of geology at the Colorado School of Mines.

Alexander Grant McGregor, 69, mechanical engineer who designed and supervised the construction of many of Arizona's important mining, smelting and metallurgical plants, died March 4 in London.

R. S. Patrick, 68, well known supplier of black diamonds (carbons) for the diamond drilling programs in the development of the Lake Superior iron ranges, died March 19 in Duluth, Minnesota.

Alvin Addison Luck, 68, operator of the Luck Mining Company, died March 19 in Silver City, New Mexico.

Frederick W. Snow, 65, of Manti, Utah, president and general manager

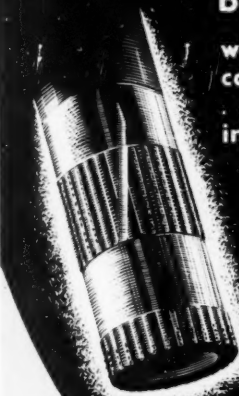
of the Vermont Copper Company since 1943, died March 8 at Hanover, New Hampshire. Until his retirement in 1928, Snow was superintendent of the Magma Copper Company at Superior, Arizona.

Robert S. Mayer, 53, mechanical superintendent at the International Smelting and Refining Company plant at Tooele, died March 3 in Salt Lake City. Prior to his affiliation with International in 1926, Mayer had been employed by Chief Consolidated at Eureka, Utah, and Anaconda Copper in Arizona.

William Henry Dow, 52, chairman and president of the Dow Chemical Company, was killed April 1 in an

airplane crash about three miles north of London, Ontario. A 1919 graduate of the University of Michigan, Dow started as a chemical engineer with Dow, becoming general manager in 1930 and chairman in 1941. He was a pioneer in the development of magnesium and its technical processes.

Walden W. Paape, 48, domestic sales manager for the Euclid Road Machinery Company of Cleveland, died March 18 in Willoughby, Ohio. An engineering graduate of the University of Illinois, Paape had been prominently identified with the construction industry for the past 25 years.



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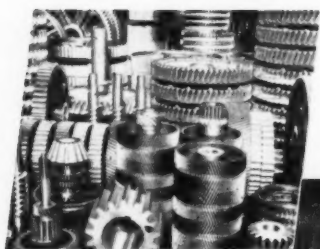
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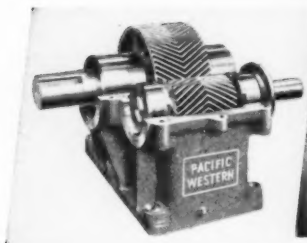
Boyles Bros.

DRILLING COMPANY

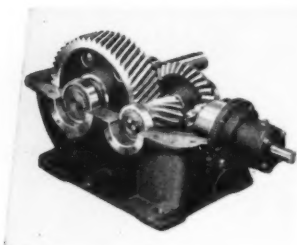
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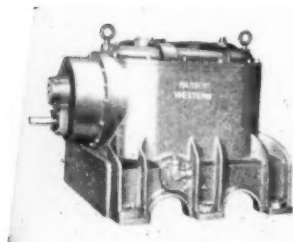
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and sizes**



**Single-reduction
speed reducer**



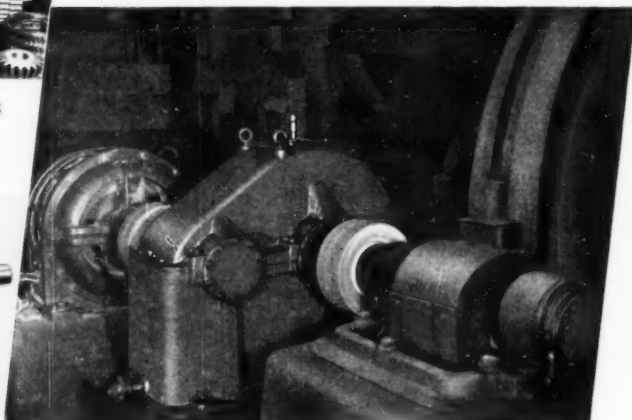
**Right-angle
speed reducer**



**Vertical-shaft
speed reducer**

**GOOD
GEARS
FOR
OVER
50
YEARS**

A typical mining industry application of Pacific-Western speed reducers is shown in the photograph below of a ball-mill drive.



SPEED REDUCERS for every mining need

Fast delivery is now available on many popular sizes of PACIFIC-WESTERN standard reducers from stock.

Complete range of ratios from 2:1 to 300:1, capacities from fractional horsepowers up to 650 in standard units; higher horsepower capacities available in special designs. Standard units are available in single, double and triple reductions. Single or double extensions on high and low speed shafts, as well as parallel, right-angle, and vertical-shaft arrangements can be obtained.

GEARS for every need... **PACIFIC-WESTERN** designs and cuts all types and sizes of gears and builds special gear boxes.

COMPLETE engineering service... We will be glad to assist you in all your mechanical power transmission needs. Over a half century of gearmaking experience is available to you to help **YOU** solve **YOUR** problems.

Write, wire or phone our nearest plant or office for complete information.

WESTERN GEAR WORKS, Seattle 4, Washington
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PACIFIC GEAR & TOOL WORKS, San Francisco 3, California
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Uphill Work, but— 20,000,000 tons of it in 6 years proves "know-how"

At this copper mine, handling cost per ton has been reduced materially in 6 years of operation. A major factor was the long periods of operation uninterrupted by failures.

Starting point for the all 'round satisfactory result was the deep and broad experience in bulk materials handling installations contributed by Stephens-Adamson's engineers.

You will want the recommendations of such an experienced staff when you improve your bulk materials handling system or install new units. Even if that is months away, write us now.

Castle Dome Copper Co.
Miami, Arizona

From truck dump-station, Amsco manganese steel pan feeder feeds run-of-mine ore over bar grizzly. Lumps are crushed and rejoin fines on S-A inclined belt conveyor shown above. Up the incline 1135 feet with a lift of 190 feet, ore is delivered (circle) to top of 2500 capacity bin at secondary crushing plant. Other S-A belt conveyors move crushed and screened ore over scales to storage bins and on to mills as needed.

STEPHENS-ADAMSON

13 Ridgeway Avenue, Aurora, Illinois MFG. CO. Los Angeles, Calif. • Belleville, Ontario

DESIGNERS AND MANUFACTURERS OF ALL TYPES OF BULK MATERIALS HANDLING EQUIPMENT

MAY, 1949

[World Mining Section—1]

27

Take a NEW LOOK at Jaw Crushers...

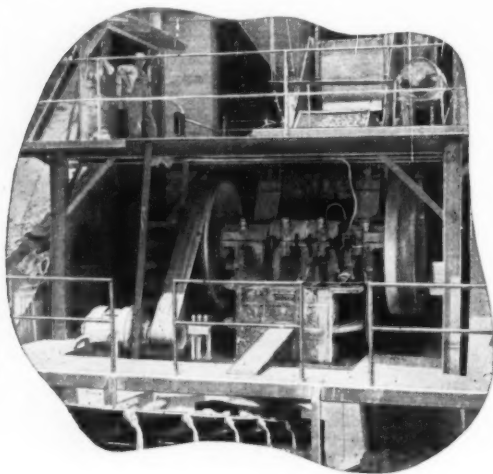
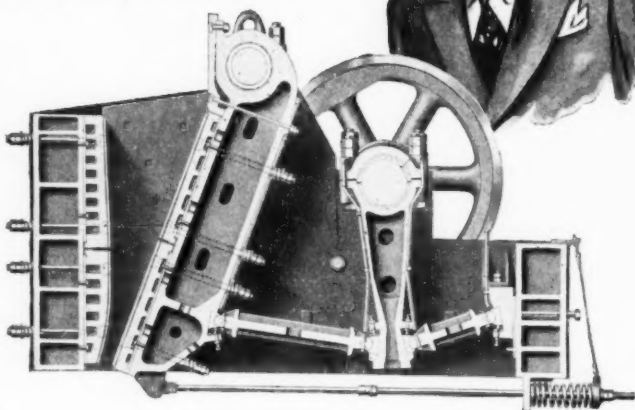
Look at CONSTRUCTION!

You'll see real jaw crusher value in every detail of the sturdy *A-1 crusher*!

Renewable parts protect expensive castings, greatly increase life of crusher. These include jaw plates of special design . . . wear plates behind the jaw plates . . . score-proof plastic swing jaw bushings . . . heat treated alloy steel toggle ends.

The crushing chamber is designed for high capacity and uniform, low wear. Lubrication is automatic. Crushing stroke can be adjusted for desired product size easily.

The *A-1 crusher* is designed for crushing especially tough, abrasive ore or rock.



Look at PERFORMANCE!

Another way you can learn about jaw crusher value—watch an *A-1 crusher* in operation! Notice that the largest piece that can enter the jaw opening is effectively nipped. Reduced slippage results in longer jaw plate life.

There's no packing or choking—because crushing is uniformly distributed throughout entire depth of crushing chamber. Built in four sizes, with receiving openings 36 by 25 to 60 by 48 in. Write today for *A-1 Jaw Crusher Bulletin 07B6369A*. ALLIS-CHALMERS, 985A S. 70 St., MILWAUKEE 1, Wis. Offices or distributors in principal cities in the U.S. and throughout the world.

A 2519

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ALLIS-CHALMERS



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. . . and Other Equipment for the Crushing, Cement and Mining Industries



"WORLD'S LARGEST"
AT DAVISON
*is an **AKINS!***

A few months ago we announced the design, fabrication and delivery—on time—of the largest submerged-spiral classifier in our history—the largest classifier of this type ever built. Here is an action photograph of the same machine in operation at the Pauway No. 4 plant of The Davison Chemical Corporation near Lakeland, Fla.

This AKINS Machine is a 66-inch duplex capable of delivering over 200 long tons per hour of deslimed phosphate rock to feed the flotation circuits. Phosphate rock producers have found that flotation reagent consumption decreases as desliming efficiency increases.

The AKINS Classifier is becoming a popular choice for efficient low-cost operation in this type of application. The machine

COLORADO
IRON WORKS
COMPANY

has reserve capacity for absorbing upward surges in feed without excessive loss of valuable fine phosphatic material. The slow, continuous operation of the double-pitch spiral insures maximum removal of moisture and detrimental slime from the product.

Our engineering service is yours for the asking on any application involving classification, desliming, de-oiling or dewatering. Go into complete detail as much as possible in writing us.

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Canadian Locomotive Co., Ltd., Kingston, Ont., Can.;
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For greater metallurgical capacity - specify **FAGERGREN**



The Fagergren Flotation Machine handles more tonnage with less power consumption . . .

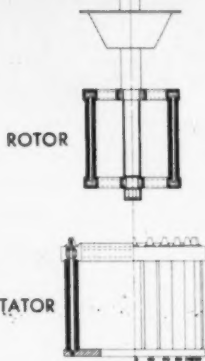
HIGHER SPEED OF FLOAT is accomplished by more intense aeration and shallower froth column. Hence, treatment time is reduced (by as much as 50%) and more tonnage per hour results.

GREATER RECOVERY of valuable mineral is assured by increased bubble formation and the thorough diffusion of finer bubbles. Alternate compression and expansion of the pulp as it passes through the rotor-stator causes intense aeration and agitation. This action provides more interfaces, and is essential to rapid, efficient mineral separation. The result is improved metallurgical efficiency.

LOWER POWER CONSUMPTION per ton of ore treated results from the level cell design of Fagergren machines, the shallow pulp column and high capacity. Unrestricted flow of pulp through cell units minimizes the power consumption.

THE FAGERGREN FLOTATION MACHINE, an exclusive WEMCO product, assures operators of higher production per cubic foot of cell volume at lower cost.

PROMPT SERVICE by experienced WEMCO field engineers and warehouse stocks of replacement parts are available through the WEMCO offices listed below.



The Rotor-Stator design of Fagergren machines, with two impellers and concentrated shearing zone, provides intense aeration and agitation. All wearing parts are rubber covered.

For full particulars, write the WEMCO office or agent nearest you



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GRAB SAMPLES—From the Mail

Venezuela Reports In

Dear Sir:

I am very glad to acknowledge receipt of your publication, which I am receiving regularly. The international news you are publishing is very interesting, as well as the illustrated technical and operational articles, and I wish to congratulate you for this publication, which I hope will be successful.

Maurice Gratacap
Consulting Engineer
Apartado 95
San Cristobal, Venezuela

Of Great Interest

Dear Sir:

I have received several copies of "World Mining" during these last months and I want to thank you for them.

I found your review of great interest and very instructive. I have been particularly interested by the article on spiral concentration last September. I understand this new process for the concentration of fine ores has been designed and developed during the war and, of course, we Frenchmen here could know nothing of it. I intend to write to the manufacturer for further information.

Another interesting presentation in your review is that of the international news. It keeps your readers informed of what is going on all over the mining world.

Robert de La Bouglise
Mining Engineer and President
Compagnie Minière de La Guinée
Française
Rue de Boulainvilliers, 41
Paris XVI, France

More on Spiral Concentration

Dear Sir:

We wish to compliment you on your recent publication and distribution abroad of "World Mining." The international importance of this issue has been well proved to us by the many letters which we have received from its readers.

Your editorial staff asked us to prepare an article concerning use of the Humphreys spiral concentrator and in the initial, September 1948 issue, published the article, "Spiral Concentration," over my signature.

We have received many letters of inquiry, as a result of the article, from readers throughout the United States as well as from eleven foreign countries. Letters of inquiry are still coming in.

Thanking you, we are

Judson S. Hubbard
The Humphreys Investment
Company
Denver, Colorado

From Mexico

Dear Sir:

I am in receipt of your interesting review, "World Mining," which you so kindly sent to me. I thank you for the courtesy.

All I have to say about your valuable publication is that "World Mining" is just what Latin America has been waiting for.

Ing. Panfilo Alvarado
Lead Mines Owner
San Miguel del Cantil
Durango, Mexico

What Price Gold?

Dear Sir:

For reasons of extreme costs, I am discontinuing operations for at least two seasons.

One barrel of fuel oil landed on the creek takes exactly one ounce of gold at present prices. Beef is \$1.15 per lb. and a case of milk is \$10. Labor, even in the poorest grades, is almost beyond hire and then unreliable. The values in the ground have not changed one iota. Until economic conditions change, placer mining on the Seward Peninsula will go at slow bell.

Bernard Vogen
Teller, Alaska

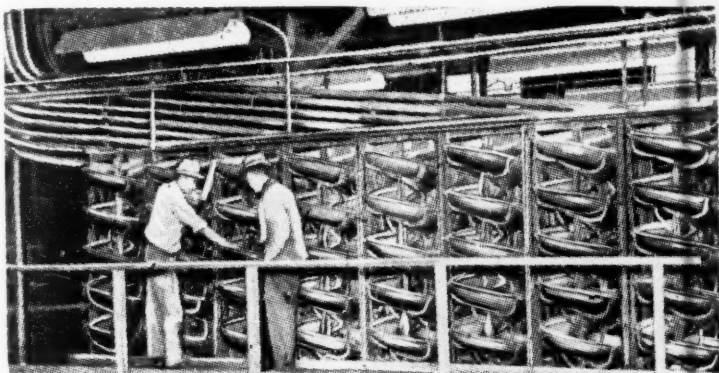
The First Periodical

Dear Sir:

I beg to express my sincere thanks to you for sending me personally, as well as to our Mining Institute, your "World Mining." These were the first overseas mining periodicals to be received since the surrender, and we, by your courtesy, are able to know mining conditions and new methods hidden from us during the dark blank of the period. Again thanking you for your kindness, we remain

Prof. E. Mikumo
Mining Institute of Engineering
Prof. E. Mikumo
Kyoto University
Kyoto, Japan

Reproduction of Japanese translation of part of the first feature article to appear in **WORLD MINING**, "Spiral Concentration," by Judson S. Hubbard. Other requests have been received for permission to translate articles into Japanese and other languages.



【写真説明】 クライマックス・モリブデン選鉱場では1日、0000の浮遊選鉱機尾を処理してマンガステンを回収している。人物は作業係長F.J. ウィンドルフおよび選鉱場長E.J.

重、礦物の遊離に要する磨砕の程度、粒子の形状にある程度関係する。適當な鐵石の場合、アルブが一四一〇〇メッシュの比重の重い鐵石粒子を含む。以下になると精製が分かれ、二〇〇「メッシュ」以下になると精製は悪くなる。然し粉炭で十四メッシュ以上のボタの粒子の入つてない場合は、その粗粉まで螺旋機で洗炭出来る。

本稿は"MINING WORLD"

誌1948年9月號所載、原筆者

はコロラド州デンヴァのヘ

ンフリーズ・インダエスト

メント會社およびヘンフ

ーズ・ゴールド・コーポレー

ション副社長、原筆者名綴

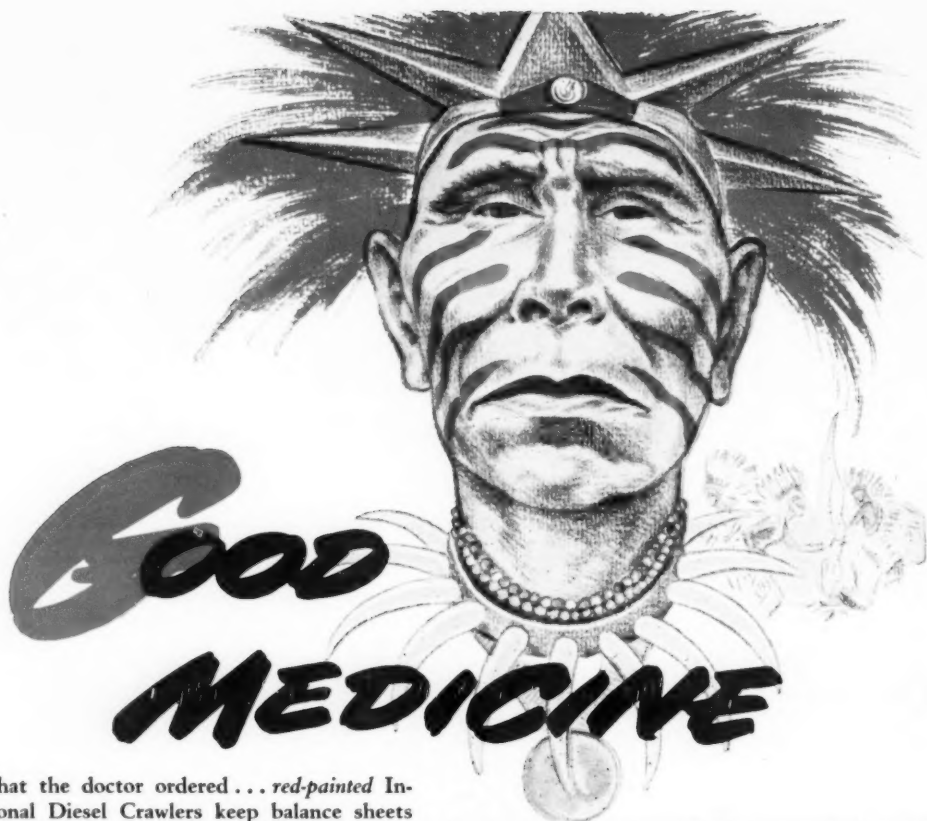
りは Judson S. Hubbard

譯者は日本鑛業協會技術部

勤務

行の出来なかつた鐵石の經濟的處理には好適である。螺旋選礦に適する鐵石の粒度の範圍は鐵石の比

(SPIRAL CONCENTRATION)
ジャドスン・S・ハバード
志保井利夫 譯



Just what the doctor ordered... *red-painted* International Diesel Crawlers keep balance sheets healthy by boosting production and guarding costs. They deliver their full-rated horsepower on every job, yet hold in reserve additional lugging ability for handling sudden overloads that would otherwise kill. • Their starting and combustion systems, fuel feed, speed governing, torque control, lubricating methods and overall rugged construction account for their superior performance and long-

lived stamina. • Since reliable, economical power is "good medicine" for any power-using business, it will pay you to contact your International Industrial Power Distributor. Get International Diesels on your jobs now.

INTERNATIONAL HARVESTER COMPANY • Chicago

An International TD-18 Diesel Crawler with hydraulic controlled bulldozer shoves off overburden for this kaolin mine in Georgia. Wherever there's a mine, there's need for dependable International crawler tractors with blades for this, as well as for building dragline walkways, access roads and doing many other jobs.



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INDUSTRIAL POWER**

WORLD MINING

The International Department of MINING WORLD

SAN FRANCISCO, CALIFORNIA

MAY, 1949

INTERNATIONAL PANORAMA

SHANGHAI—Reports indicate that Russian officials have begun conversations with representatives of the Chinese Foreign Ministry relative to the exploitation of Sinkiang's mineral resources. Ferroalloy minerals rank high on the list of items discussed.

AUSTRALIA—The Prices Decontrol Commissioner in a recent order increased the Australian maximum price of scrap copper from £130 per ton to £150 per ton.

BAVARIA—With higher wages as the goal, nearly the entire mining population of Bavaria is on strike at the date of writing.

NEW YORK—For the fifth time in a month the price of lead was cut for a total decrease of 6½ cents a pound. As this is written the price stands at 15 cents a pound.

WASHINGTON—Just before going to press it was announced that the House Appropriations Committee approved the expenditure of \$40,000,000 in cash and a total of \$270,000,000 in contract authority for stockpiling of essential minerals and metals.

ANKARA—A 20-man Hungarian commission recently arrived in Turkey to negotiate for the purchase of what is estimated at one-half of this year's output of Turkish chrome ore.

BURMA—Communications have been received from the Mawchi mines which indicate that because of political unrest contact with the interior has been disrupted seriously. Production of tin and tungsten were about equal for the months of January and February, totaling about 45 tons each month.

MEXICO CITY—With the successful execution of the plan for accelerating rail transportation, Mexican miners and smelters are getting much prompter returns for their ore and the railroads are moving larger tonnages to the treatment plants. A recent report gives the figure of 74,860 tons for the latest month.

NEW YORK—Zinc is now offered at 15 cents a pound, East St. Louis. This is a drop of 2½ cents a pound in less than two weeks. Demand for the metal has been at a standstill for considerable time.

EIRE—Irishmen are leaving their home country for employment in the mines of South Africa. Latest reports say that over 400 have applied for work already. Passage is paid and all applicants chosen are guaranteed a job.

LONDON—Gold shares are booming on the London Stock Exchange for the first time in many years under the influence of good showings in a number of South African properties and Finance Minister Havenga's recent budget speech. In this speech, Havenga said he believes moves are afoot to increase the price of gold.

WASHINGTON—The measure supporting the suspension of the copper import tax has been signed by the President. This took place after adoption by the House of the Conference Report on H. R. 2313. Suspension of the tax will continue until June 30, 1950, under the conference amendment adopted by both houses.

BRUSSELS—Belgian tin producers are disappointed that the conference for the formulation of an international tin agreement will not convene in May as was originally planned. Delay is attributed to the belief that U. S. officials indicate that the draft of the agreement has not been advanced sufficiently.

WASHINGTON—Antimony was decontrolled by the revocation of Government Order M-112 on March 31.

NEW MEXICO—A new \$1,500,000 potash refining plant was opened recently at Carlsbad by the International Minerals & Chemical Company. The new facilities are capable of producing 20,000 tons of high grade potassium chloride yearly. Potassium sulphate also will be produced.

JOHANNESBURG—Finance Minister Havenga has announced a second scheme for assisting the gold mining industry by disposing of gold at a price above the \$35 standard. This time, the gold is to be sold within the Union at a premium of 17/6 an ounce for processing. This is approximately 10 percent above the prevailing price. The manufactured articles are then to be exported under strict controls aimed at preventing any illicit dealings.

PHILIPPINES—Balatoc Mining Company has been awarded a \$4,500,000 claim by the War Damage Commission as payment for damages sustained during the war. A down payment of \$1,500,000 has been received. Balatoc is a Huassermann holding.

BRUSSELS—Late reports from Belgium indicate two significant developments relative to the gold mining industry. These are official toleration of a free gold market in Brussels and the concession granted to the gold mines of the Belgian Congo, which produce around £2,500,000 in gold annually, to dispose of 40 percent of their output in the free market.

ANTARCTICA—Members of the Australian scientific expedition to Heard Island returned with specimens of free gold ore from an outcropping discovered by geologist A. J. Lambeth of Sydney. This one discovery was the only gold found.

Zinc Corp. Consolidating Its £20,000,000 Empire

Zinc Corporation, the Commonwealth's largest lead-zinc producer, is pushing ahead its scheme for consolidating its £20,000,000 empire by sponsoring the formation of Consolidated Zinc Corporation, Ltd., in London.

The new corporation will take over, according to the percentage shown, the following interests: Zinc Corporation, 100 percent; Sulphide Corporation, 100 percent; Imperial Smelting Corporation, 100 percent; Broken Hill Corporation, 100 percent; Broken Hill Associated Smelters, 50 percent; New Broken Hill Consolidated, 32 percent, and Western New South Wales Electric Power, 32 percent.

This new scheme means the concentration in the hands of Zinc Corporation practically all the large lucrative mining operations in Australia outside of the American-owned Mount Isa mines.

Tantalite Ltd. Forms New Australian Mining Firm

Tantalite Ltd., with the support of the West Australian government, has formed New Metals (Australia), Ltd., which will take over Tantalite's leases at Wodgina, Strelley and Tabba Tabba and erect a plant to treat beryl and tantalite at Welshpool near Perth.

The nominal capital of the new company is £500,000, and the Federal Treasury has approved the issue of 40,000 one pound shares to the vendor company and 100,000 one pound shares for public subscription.

Directors of the new organization include: Dr. Deborah Buller Murphy; N. Fernie, director of Western Australian industrial development; E. LeSteere, W. C. Bennett and Basil Buller Murphy.

Huge Steel Plant Is Now Being Built in Norway

A steel plant, which will be Norway's largest industrial installation, is now being established in the northern part of the country with the assistance of government finances and British construction engineers.

Obtaining its electric power from Rosaga, the plant will have an ultimate capacity of 500,000 tons of rolling mill products annually. Three electric furnaces, each with an an-

WORLD MINING

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WORLD MINING is published the 26th
of each month as a regular department of
MINING WORLD and is also circulated
as a separate section on a carefully con-
trolled free basis to a selected list of
management and supervisory personnel
associated with active mining enterprises
throughout the world.

nual capacity of 60,000 tons, already
have been ordered.

Operations are scheduled to get
under way in 1953, with iron ore
being obtained from the nearby Dun-
derland fields, said to contain one
billion tons of ore.

African Mine Milling at Initial 50,000 Ton Rate

Milling operations at an initial rate
of 50,000 tons monthly have been
started by the Libanon Gold Mining
Company, South Africa's first large
property to start production since the
war.

Situated on the West Wits Line, 30
miles southwest of the Central Rand,
the Libanon was first registered some
13 years ago; however, its progress
to production was halted for three
years by the war, with one shaft
completed at 4,110' and the other
down to 2,338'.

The mine was reopened in Decem-
ber, 1945, and development was ad-
vanced sufficiently for erection of
the reduction plant to commence in
April, 1947. The latter work has been
slowed down by personnel shortages
and delayed equipment deliveries, so
that the plant has commenced mill-
ing with only two of its units com-
pleted. The third of these 25,000-ton
units is now nearing completion,
while portions of the fourth are still
in transit from the manufacturers.

Dr. W. J. Busschau, Libanon's
chairman, sounded a warning that
mined grade would probably not be
of the highest order, and as produc-
tion costs were expected to be high,
the fortunes of the mine depended
largely on the success of government
attempts to check the rising com-
modity prices and to obtain an in-
creased gold price.

Electric Power Resources Of Brazil Disclosed

Brazil's National Department of
Mineral Production, Water Division,
recently presented data on the elec-
trical power in Brazil and its sources.

The best possibilities regarding
thermaelectrical power are in Rio
Grande do Sul, with 56,829 kws.
Other sources include Pernambuco,
with 43,352 kws.; Sao Paulo, with
20,272 kws., and Federal District,
with 15,321 kws. Total thermal power
available is 237,736 kws.

As regards hydroelectric power,
Sao Paulo has 656,316 kws.; Rio de
Janeiro, 325,641 kws.; Minas Gerais,
170,450 kws., and Parana, 28,578 kws.
Total hydroelectric power available
is 1,248,406 kws.

Malaya Lacks Loan Funds For Tin Rehabilitation

Owing to the fact that the Malayan
government's surplus finances have
been exhausted by the cost of the
present campaign of unrest, Malaya
is now in the position of not being
able to continue advancing loans to
mining companies for rehabilitation
of their tin dredges.

As a suspension of this aid would
start a decline of production and
consequent loss of dollar earnings,
Secretary of State for the Colonies
Crech-Jones has announced that
arrangements have been completed
for further loans to be made through
the Industrial Rehabilitation Finance
Board at three percent per annum.

Nicaragua Has Profitable Operation Near Matagalpa

An example of a small tonnage,
low-grade, yet profitable lode mining
venture is that of Minas Matagalpa,
at Matagalpa, Nicaragua, near the
site of the old La Reina mill, oper-
ated for 15 years in the early part of
the century by British interests.

The operation has a straight cyan-
ide mill with a maximum capacity
of 120 tons daily. The ore, which
averages 0.18, is mined from widely
scattered underground workings and
trucked to the mill. Power for the
operation is supplied by a hydro-
electric plant, augmented during the
dry season by a small diesel-genera-

tor plant and one electric and two
diesel-powered compressors.

The veins now being mined are in
the same network of narrow veins
originally exploited by the British
firm. Some of the old dumps and mill
tailings are also being milled by the
present operators with a satisfactory
recovery.

The Neptune Gold Mining Com-
pany of Bonanza, American Smelting
and Refining subsidiary, is the oper-
ator for the owner, I. Wayland Bon-
bright, Jr., of One Wall Street, New
York. E. Ericson, representing the
Bonbright interests, and Henry Le-
fevre, consultant for Minas Mata-
galpa, recently made an inspection
trip of the mine, accompanied by
C. E. Nelson, general manager of
Neptune. Eduardo Amador is resi-
dent superintendent of mines, and
Fausto Amador is mill superintend-
ent and office manager.

U. N. Commission Sets New Steel Target For Europe

The United Nations Economic
Commission for Europe has set a
1949 target for the European crude
steel output of 56,000,000 tons, ex-
cluding Russian production. This
amount is 9,000,000 tons more than
the 1948 level and equivalent to the
record output of 1937.

The Committee expects little im-
provement this year in iron ore pro-
duction, although a significant relief
from the iron ore shortage is forecast
for 1950. It is estimated that Europe
will have a deficit of 3,200,000 tons
of iron ore, or 14 percent of its im-
port requirements this year.

Important Strikes Made In African Gold Fields

Although more than 10 large com-
panies already are engaged either in
shaft sinking or actual production on
the southwestern extension of the
Witwatersrand and new Orange Free
State gold fields, exploratory drilling
shows no signs of abating.

The latest important strike was
made 10 miles northeast of Klerks-
dorp, southwest Transvaal, by the
New Pioneer Company, which inter-
sected the Vaal Reef in a borehole at
2,947'. The core had a gold content
equal to 1,419' dwt.

Another gratifying intersection was
encountered by New Free State Gold
Estates, which obtained a core assay-
ing 427" dwt. from the Basal Reef at
a depth of 5,504'.

Significance of the New Pioneer
strike is that it is the third of high
value, the others showing 607 and 750"
dwt. It also confirms the existence of
the reef as lying at considerably less
depth than on adjoining properties to
the southwest where it is covered by
a great thickness of igneous rock and
lies at depths of at least 5,000'.



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TIN, A WORLD ANXIETY

Unstable conditions in the tin producing countries, coupled with price problems, constitute the basis for alarm over available supplies of metal

As tin is the one metal still under allocation, no extraordinary mental acuteness is needed to grasp that the situation regarding this commodity is far from easy. The following paper, written by an American upon his return from a six months' survey of the tin producing areas of the Orient, agrees to a considerable extent with the views expressed to MINING WORLD by Norman Cleveland, presented in the accompanying box story. Reading between the lines, it can be seen that the movement toward self-government in these areas may have an adverse effect on tin production for some time. If conditions fail to improve, we may well ask where will the world get sufficient tin?—Ed.

As a strategic mineral the continued production of tin ore, stannous oxide, in the Malayan Archipelago, is of vital importance and almost essential to American peacetime, as well as wartime, economy. The Bolivian tin ores are complex and their reduction to metallic tin, without adulteration with the pure cassiterites of the Far East, is economically, if not virtually, impossible. The country is now "stock piling" tin ore, not metallic tin, as insurance against a third world war. The principle is sound. By stock piling the Malayan ores the government-built tin smelter in Texas can admit 70-80 percent Bolivian tin ore with them in the production of metallic tin, thus materially enhancing and enlarging the available supply of Bolivian ores.

The tin producing countries of the Far East are Siam, Malaya, and three small islands of the Netherlands Indies, off the coast of Sumatra (Bangke, Billiton and Singkek). Tin is also found in Southern Burma. Some minor occurrences are found in French Indo-China and there was small production in Southern China.

BURMA

Burma tin production prior to the war was largely that of the Anglo-Oriental (Malaya) Ltd. dredges near Tavoy, and the Austral-Malay dredge at Thabawleik. Some native-operated open-cast mines also contributed a limited production. A considerable

area of undeveloped land offered a limited future potential.

The Anglo-Oriental Company is now proceeding with what might be interpreted as apparent reluctance to rebuild their prewar dredges. The work is being done to protect their equity. Payment of war damage claims is predicated on rehabilitation of the property, and the extension of mining leases on an assurance of operations.

Since Burma has become independent the affairs of that country are far from happy. The health rate index has dropped beyond a point of alarm, and continued to fall. No effective road or railway maintenance has been done. The communication network, including postal, has become unreliable and is deteriorating further. Even a pretense of education has ceased.

Internal strife has been the result of independence. Two warring factions, both labeling themselves Communist, have caused riot and bloodshed. There is little doubt that one, or a coalition of both, of these Communist factions will ultimately take over the government of Burma. This government would undoubtedly be Soviet directed.

Tin production in this area is currently at a rate of about 600 tons per year. Should the European-owned mines resume operations before complete political collapse occurs, production may reach 1,600 to 1,700 tons per year. It would not, however, be safe to presume any production beyond 1951 or 1952.

FRENCH INDO-CHINA

Tin production in this country was never appreciable, reaching a maximum of about 1,500 tons in 1938. No mines of any size or consequence were operated. It is not confirmed that any large or rich deposits occur. The possibility of exploitation, however, and the current internal political situation warrants the inclusion of this area in the summary.

Indo-China is a country of different racial factions with differences of customs and religious views. Prior to the war a strong French rule maintained order, and the semblance of a homogeneous state. With the end of Japanese control, however, the country fell apart, and further efforts by the French have been retarded.

At the present time, French rule and policing hardly goes beyond the perimeter of Saigon. Therefore, little potential tin production appears assured from this country.

SIAM

Prior to the war Siam produced approximately seven percent of the world's supply of tin ore, or about 17,000 tons per year of metallic tin. Nearly all was sold to the British-owned smelters in British Malaya. Approximately half was produced by British-owned dredges (approximately 40) and half from Chinese-owned and operated open-cast mines.

Less than 17 dredges are now operating, but an additional 18 are in the process of reconstruction. Little is known of the open-cast mine production, but it is believed to be only about 40 percent of prewar production. The 1948 production was only about 3,300 tons, but the estimated rate of production as of January 1, 1949, would be about 7,500 tons per year. The 1949 production should reach 8,500 tons and the 1950 production nearly 10,000 tons.

The current production is from the alluvial plains on the west coast of Siam from Phuket Island north of Renong on the Burma border. On the east coast are spotty occurrences from Hajii north. Considerable low-grade areas in these districts are held under mining lease for future working. Additional prospecting has been done, but with discouraging results, within the same general districts.

Following the main granite range northward on land and from the air, and tracing the limestone outcrops on the alluvial plains of both the east and west coasts, it would appear that placer tin occurrence in the areas east of Tavoy (within Siam) are likely. This is confirmed by some hand washing. Additionally, extensive tin occurrences on the east coast, particularly on the offshore islands, such as Ko Phangan, are most likely.

In general, we could estimate a long-range future potential tin production from Siam of possibly 50,000 tons per year; if, and when, the political situation warranted the capital investment necessary for prospecting, development and operation. This would be possible only if the Siamese government relaxed regulations and high royalty costs on foreign capital.

Prior to the war Siam was a typical Asiatic governed country. In Siam's favor it should be noted that British, German and American "advisors" were employed and were responsible for the many roads, postal service, power plants, railway, etc., but it should not be forgotten that Siam was an ally of Japan in the recent war, and that it was its original violation of neutrality which caused the initial ease of the Japanese Malayan invasion.

Siam would appear to have learned a lesson from the war. The present government is a military dictatorship, with strength enough to maintain order. Under such a government the influence of external political pressure, such as Communism is at least bottled up.

FEDERATION OF MALAYA

Malayan production of tin ore or concentrate prior to the war was probably close to 5,000 tons per month from dredges alone. The open cast mines, free washing licenses, and lode mines contributed an equal amount for a total of approximately 80,000 tons of metallic tin per year. As of January 1, 1949, the production rate was less than 45,000 tons per year. This was contributed about 60 percent by dredges and 40 percent by Chinese owned and operated open cast mines. Sixty to sixty-three of the 125 prewar dredges are now operating in Malaya and perhaps another 15 should be operating before the end of 1949. Malayan production for 1949 could reach 60,000 to 65,000 tons, but probably will not. If internal conditions permit, a production rate of 75,000 tons per year in 1950 is reasonable.

In so far as private enterprise is concerned, the Malayan tin industry has done a very efficient job in rehabilitation with due regard for various labor difficulties and restrictions which have hampered operators from time to time.

However, any considerable expansion of the tin industry in Malaya is restricted by available profitable mining land. Tin mining of the alluvial deposits of the Malayan west coast is over 40 years old, and all the obvious areas and most of the speculative areas are already taken up. The country has been prospected and re-prospected for the last 20 years. Remaining then are only the low-grade areas in the tidal swamp land along the west coast. These areas will run between one-quarter and one-third pound of tin per cubic yard, too low for current high cost operations. Furthermore, these deposits are of very fine ore and recovery by current methods would be incomplete.

In addition to the vast low-grade coastal areas there remain the con-

Need for Stable Government and Price Stressed To Assure Tin Production



NORMAN CLEAVELAND, general manager, Pacific Tin Consolidated Corporation, during an interview with one of MINING WORLD'S reporters on April 1, 1949, revealed the facts published below.

Tin production has steadily increased and is still increasing, as well as rubber production, in spite of unrest and Terrorist activities, but it is increasing at a rate well below what had been anticipated. It is feared that production will decline if the Terrorist activities are not checked. Reports I have received since I left (two months ago) indicate that the situation may be improving.

In major cities and towns the situation is well under control, but in the field it is still necessary to be well armed and travel in armored cars. Attacks are usually made from ambush and hand grenades and automatic weapons are used by the Terrorists. There has been a substantial loss of life from such attacks to date. The British have all the forces they can spare in Malaya and are training large numbers of Malaysians to help in policing the country. The bandits have not been able to retain control of any areas, but they have converted large sections of the country into something approaching a "no man's land." The country's government is being turned over to the Malaysians at an accelerated rate by the British, who are leaving the people an excellent heritage of stable civil administration under which the individual has an unusual amount of freedom. The native administrators will be hard pressed to maintain the same standards, particularly in the face of potent forces such as these Communists supporting Terrorists who are seeking to establish a state of chaos.

It is a major problem of America's, since tin supply is threatened by these lawless elements. Since the Terrorists are nearly all Chinese and mostly foreign-born Chinese, their eventual success or failure may well depend on the general situation in China because 40 percent of the population of Malaya is Chinese. The Chinese are practically equal in number to the Malays.

The Chinese have been far more aggressive than the Malays in business and industrial matters. In fact, a major portion of the wealth of Malaya is in the hands of the Chinese and the Chinese do a substantial amount of the mining. The Chinese are one of the world's most industrious people and very aggressive in a business way, but have never shown any great talent for civil administration. The overwhelming proportion of Chinese in Malaya are in no way in sympathy with the Communists, but are subject to intimidation and terrorism, and, should their homeland become Communist, they would undoubtedly be increasingly sympathetic to Communist movements in Malaya.

The Malays are almost totally opposed to the Terrorists largely because of their behavior during the Japanese occupation, when they preyed on the civilian population far more than on the Japanese.

One of the most important considerations for continued normal tin production is the price of the metal, because, even under the present price, there is very little incentive to open up new mines. Tin is higher in price than at any time in history, but the price of tin in relation to most other metals is still low. Also, reserves are lower in grade, and to maintain a normal rate of tin production, there will have to be far more assurance of a stable tin price than ever before. I'm afraid that, by and large, Americans are unaware of the importance of a stable Malayan economy. It is highly essential for American welfare that Malaya be economically and politically healthy in order that this important source of tin and rubber remain productive. It is definitely to America's best interests that the price of both tin and rubber be adequate to stabilize Malayan economy. Malaya, in spite of recent developments, is still, and always has been, one of the most stable spots in Southeast Asia.

siderable lands within the present mining areas which are now given over to rubber cultivation. These lands may average as much as one-half pound per cubic yard of tin, and they probably will ultimately be made available for mining. Development on the east coast of Malaya has never indicated good probability, but it is noted that the Malaya Tin Dredging Company now has a prospecting license covering 10,000 acres in Trengganu. Similarly, it is believed that vast areas in Pahang may be possible prospects.

The mining of proven areas in Malaya, with currently operating equipment, is probably from 10 to 15 years. Mineable areas, now under agricultural lease, or restricted as Forest Reserves, may add as much as 10 years.

It must be noted here that no prospecting in Malaya was, of course, done during the period of Japanese occupation, although the ore reserves were greatly depleted. During the period of Japanese occupation the operation of mines in Malaya, particularly dredges, was carried out by Chinese and Malays under Japanese supervision. The work was inefficient and a probable recovery factor of 30 percent only was reached. Thus, while only 50,000 tons of metallic tin were produced, the ore reserves depleted were capable of producing 165,000 tons. Furthermore, no appreciable prospecting has been possible from June, 1948, to date, due to bandit hostilities. This will seriously impair the expansion of the industry necessary to compensate for depletion of reserves due to normal operations.

The Federation of Malaya is not a British Colony. The various states comprise a union or federation under a British protectorate. (Prior to the war four states comprised the Federated Malay States, and four, refusing to join the Federation, were known as the Non-Federated States.) The difference is worthy of note as it partially explains much of the current political difficulty.

The British labor government has recently decreed that the Malays can rule themselves and have established the Federation of Malaya, comprising all the states. The British still operate and maintain all the essential services such as railways, posts, telegraph, roads, water supply, electrical, etc. The British have already given the government over to the Malays, and remain as advisors.

The population of Malaya is only about one-third Malay. Fifty percent are Chinese, who, even if Malayan born, maintain their Chinese nationality. These Chinese are the workers

and producers of the country; they comprise the clerks, the shop keepers, the truckers, the mine laborers, the small mine owners and operators. Under pre-war British rule they were happy, contented and prosperous. They now look uneasily on the increasing costs of government, and the resultant decrease in their purchasing power, resulting from their lack of participation in the government of Malaya. This group then, with little voice in the government, have become ripe for change; the low income class trending toward communism.

Banditry in Malaya is probably nearly all made up of Chinese. They originally comprised the young element, 16 to 20 years only, who made up the "Malayan Peoples Anti-Japanese Army" during the war. This group was supplied with vast stores of arms and ammunition by the British and American armies from India, with the thought or hope that they would make things tough for the Japanese occupation force. In practice the "M. P. A. J. A." found the Japs too dangerous and they considered it more profitable to go into the bandit business.

During the Japanese occupation they collected food by terrorizing small Chinese and Malay villages. For funds necessary to purchase the niceties of life they would kidnap and hold for ransom a wealthy Chinese Towkay. (In many instances they "excused" their kidnappings on the assumption, rightly or wrongly, that the Towkay was a Japanese collaborationist.) The tough young Chinese element did not like the alternative of working for a living and they elected to stay in the bandit business. Their bandit activities were then confined to those same depredations as characterized their activities during Japanese occupation: the pillaging of small native villages and the kidnapping of wealthy Chinese for ransom. They did not, in 1946 and 1947, make any attack on any European or on any European-owned property or equipment.

This was the period, 1946-1947, when the banditry could have been wiped out. Unfortunately, however, the British police were not then in any way up to their pre-war standard of efficiency. Over 95 percent of the pre-war police had been Japanese prisoners; only the younger men could be returned to the country, and they only after health and recuperative leaves at home. The military occupation forces had no knowledge of the country or of the Asiatics. They could not speak the native languages and their efforts were ineffective. By 1948 the police functions had materially improved,

although they were still imperfect, and all but military garrison troops were recalled. During this period the police made some good progress against banditry.

Then in April and May, 1948, the bandit policy changed radically. Instead of limiting their depredations to acts against Asiatics they began attacking European-owned properties, particularly rubber estates, and attacks on Europeans commenced. In June the bandits began to call themselves Communists, and the police estimated that forces of approximately 3,000, made up of small groups, became a fairly homogeneous "Communist" element of twice that size.

With the change in policy and the increased size of the force, the bandit - Communist showed no lack of food, money, or arms. The arms, of course, came from the "M. P. A. J. A." supplies, but it is doubtful if all the food or money came from within Malaya. Documents captured by the police and military in August and September proved conclusively that Russians and Soviet-trained Chinese from outside Malaya were directing the activity. One paper captured purported to show that at a Communist conference held in Calcutta in April, 1948, it was decided that Kedah would be the first Malayan Communist puppet state.

Worthy of note is that an appreciable amount of the necessary funds to maintain the Chinese bandit-Communist forces came from the wealthy Chinese of Malaya. These Towkays paid "tribute," not entirely under duress. They may also have been protesting against their inability to participate in the Malay government, but most particularly these payments were as "insurance" against the far-fetched possibility of Malaya ultimately becoming Communist.

As of December, 1948, the banditry, while not wiped out, had taken to cover, and the more serious acts of violence materially decreased. The bandit elements have again broken up into small gangs and the "opportunists" who joined their ranks in June and July have returned to more normal occupations. It would appear that the Soviet looks on Malaya, temporarily at least, as a lost cause; much of their direction and organization has apparently ceased.

Under efficient British rule, such as characterized the country before the war, we could anticipate an annual tin production from this country of 80,000 to 90,000 tons for the next 25 years or more.

NETHERLANDS INDIES

Pre-war tin production in the Netherland Indies came from the

MINING WORLD

exceptionally rich concentrations on the islands north of Sumatra and south of Singapore. The Dutch government, under the name of **HOOF T VA DE BANKA TINWINNING**, operated the mines on the island of Bangka, and the **H. V. BILLITON MAATSCHAPPIJ** (a private corporation, but 30 percent government-owned), operated the mines on the islands of Billiton and Singkep. Pre-war production was probably close to 50,000 tons of metallic tin per year, and all ore was shipped to Arnheim, Holland, for smelting.

The private Billiton Company has, since the war, a management contract for all of the properties. They now operate on Singkep four dredges, two of which are new since the war. At Billiton they operate 14 dredges, two of which are post-war dredges; and at Bangka eight post-war dredges. Production in these fields was at a rate of 26,000 tons only as of August, 1948. Since that date, however, all of the six new dredges are in production and the rate may now be as high as 35,000 tons per year. It is noted that the alluvial open cast and lode mines, which accounted for over one-third of the pre-war production, are not now operating, and no plans would appear to exist for their early rehabilitation. The post-war dredges are the largest and most modern in the world today and their production rate is high.

The current production rate from these mines is rather confusing, and a good estimate of future production is almost impossible. In November, 1948, it appeared as if the management was placing the new dredges in the richest possible areas, for purposes of a quick high recovery; without regard for uniformity of production over the life of the property. Additionally, no good explanation regarding the failure immediately to rehabilitate the fabulously rich open cast or lode mines was given. Under normal conditions one could estimate a production of 30,000 tons per year for an unlimited period. If a "quick production" policy is used, the existing equipment may be made to produce at a rate of 35,000 to 37,000 tons per year.

The Indonesian banditry is blood brother to that in Malaya. There was no "Nationalist" feeling of any importance in pre-war Java or Sumatra, and the current Indonesian Republic movement is a direct result of the Japanese propaganda for "Asiatic Co-Prosperity."

It is conceded by the honest Indonesian that their nationalist movement was Japanese born. Now it must be remembered that Admiral Lord Louis Mountbatten would not permit a complement of Dutch troops

to accompany the British occupation forces to Batavia. The British military occupation of Java and Sumatra was limited almost exclusively to Batavia and a few other of the larger industrial centers. Thus, the great percentage of this vast and populous country was without any effective policing means, or methods of prescribing or effecting law and order. It was at this point in Indonesian history that Dr. Soekarno, a Soviet-trained Communist, stepped in and by personal proclamation decreed the Indonesian Republic.

Our Dutch allies of the last war were anxious to reoccupy and rehabilitate the Indies, and finally the British troops were recalled and the Dutch moved in. Apparently it was too late. The Dutch tried to stop looting, sabotage (with violence) of rail communications, and general acts of armed violence on individuals.

The Dutch, trustingly and obediently, stood by for over a year. Violence and pillage by lawless elements, which the Indonesian Republic couldn't control, became increasingly worse. Finally, in December, 1948, the Dutch decided that "police action" was necessary. This "police action" was not designed to break a true and honest Republic of Indonesia, but rather to smoke the guerrilla-Communist bands, under the cloak of the Republic, into the open.

CHINA

Chinese tin production is not, and probably will never be, of any significance or importance. It is doubtful if there exists, geologically, any large potentially developable areas. The inclusion of this country in this study is then only in the effect, po-

litically, of China on its neighboring countries.

There is little or no doubt that the Chinese Communists will dictate the peace of China within a short time. Regardless of how drastic those terms may be, one cannot help but wonder how far the great mass of Chinese will, by their actions, endorse those terms. To the great mass of Chinese, the Communist revolution is a reform movement, brought about by the corruptions of the Kuemintang government. Within the Chinese Communist party, including the Chinese Communist army, it is doubtful if over 500 Chinese are Soviet-trained, or have any true conception of Communistic doctrines. Perhaps another 5,000 or 10,000 pseudo intellectuals, "Opportunists," may also be added, and classed as "leaders."

The total Chinese Communists within the country, including the militant loud speakers described in the preceding paragraph, probably does not exceed 3,000,000. This then is less than one percent of the total population.

One cannot help but wonder if the Russian Soviet effort in China is, for them, a losing battle. Will the great immovable mass of Chinese, a people noted for their basic simplicity and adherence to old principles and customs, be moved by the doctrines of Communism? Is it not more probable that the Soviet effort toward the political conquest of China will be, as was the Japanese effort toward military conquest, similar to fighting a feather mattress? This may be in the nature of "wishful thinking," for it is remembered that the Chinese once endorsed the record of Dr. Sun Yet Sen.

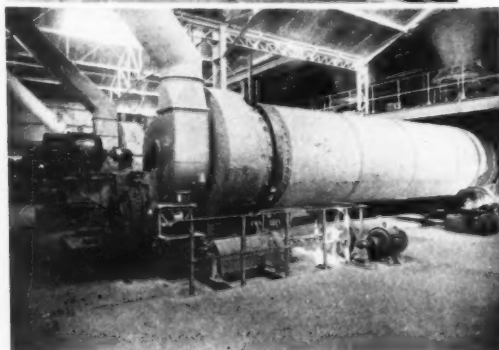
Asiaties working cassiterite-bearing gravel in Malaya by panning and the use of sluices. As of January, 1949, such methods accounted for approximately 40 percent of Malayan tin production. When more dredges get into operation, it is supposed that the portion won by hand mining methods will fall.





Phosphate Mining in French North Africa

Some of the phases of phosphate mining are shown in this group of pictures. At upper left is a strictly modern phosphate treatment plant, of the Cie. de Phosphate des Constantins, and is at Kouif in Algeria, where crude rock runs 65 to 70 percent phosphate. A typical phosphate mine in the semi-arid country of Tunisia is shown at upper right. This is the Cie. des Phosphates Tunisiens' plant at Kalaa Djerda, showing head frame, ore bins and form of transportation used to move broken ore. The picture second from top shows miners working in one of the long-wall mines of the Cherifien des Phosphates in Morocco, and indicates the cut is about seven feet high and is advancing horizontally. The miner picking down the wall attests that the phosphate rock is soft and easily worked. Next cut-down illustrates loading of phosphates in the harbor of Casablanca, Morocco. This loading device, mobile and strictly modern, can charge a 6,000 ton ship in 15 hours and is one of the pieces of equipment operated by the Cherifien des Phosphates. At bottom left are three modern kilns and dust collectors at a Morocco phosphate mine of the Cherifien des Phosphates. The scene at bottom right shows the huge machine spreading phosphate rock to allow the sun to draw the contained water from it. In this manner, water content is cut from 8 to 10 percent to between three and four. This was taken at Cherifien des Phosphates in Morocco.



FRANCE'S PHOSPHATE RESOURCES

Vital to the world's agriculture, this brief review gives an idea of the French phosphate industry and its wide-flung distribution

The two articles by John E. Kelly on the Florida phosphate industry in the August and December, 1948, numbers of MINING WORLD, gave to the readers an idea of the tremendous importance that phosphate fertilizers play in the world of today. This short article, prepared by WORLD MINING'S Paris correspondent, briefly sketches some of the salient features of France's phosphate mining business and gives a glimpse of the far-scattered operations making up the industry.—Ed.

France's wealth of phosphates is derived not from its own subsoil, but from immense fields in North Africa—Algeria, Tunisia, and Morocco. The phosphate mines of France proper provide only about 100,000 tons annually of a variable but low phosphorus content which is used in part by the metallurgical industries and the remainder by agriculture. Oceania provides a certain share of the total phosphates provided by the French colonial possessions.

The French North African fields are in two groups, situated at the opposite ends of the Moghreb. These are the Algero-Tunisian and the Morocco groups. According to the tenor of the fertilizer mined in these fields, the material is classified as follows:

A. Low-grade ore, and

B. High-grade ore.

Locations of the fields of low-grade ore and their assays are indicated below:

Tunisia: Gafsa; M'Dilla; Kalaa Djerda, 58 to 63 percent.

Tunisia: Gafsa, 63 to 65 percent.

Tunisia: Gafsa; M'Dilla, 65 to 70 percent.

Algeria: M'Zaita, 58 to 63 percent.

Morocco: Louis Gentil, 68 to 72 percent.

Location of fields of high-grade ore and their assays are indicated below: Morocco: Kourigba, 73 to 77 percent.

Mining of the Algerian-Tunisian group began in 1893. The minerals—oolitic phosphates of sedimentary origin—situated astride the frontier separating these two territories, are rocks of sandstone-like appearance. The colors range from light gray to brown, and even black. The oolites—75 percent tri-calcium phosphate—constitute the richest part of the ore. The binding cement contains less

than 25 percent tri-calcium phosphate. This cement, which is soft in the southern fields around Gafsa, is much harder in the northern fields in the region of Tebessa. Lime comprises 50 percent of the mineral composition when the phosphoric acid approaches 30 percent. In lesser proportion, fluorite and forms of sulphates are found.

Mining employs the long wall method combined with room and pillar. The extracted ores contain eight to 10 percent water. This is reduced to three or three and one-half percent by solar evaporation during the summer, and in the winter rotary kilns heated by fuel oil or coal are employed to drive off the water.

The soft-cemented southern phosphates are enriched by eliminating the cement by screening and wind-blasting after crushing lightly so as not to break up the oolites. This air-blasting concentration shows a gain of from one to four percent in the phosphate content of the material.

Concentrating experiments by washing (in regions where there is plenty of water) or by calcining are being attempted. A very small part of the Algerian-Tunisian phosphates is calcined and used locally as superphosphates or hyperphosphates. Phosphates are exported through the ports of Bougie, Bone, Tunis, Sousse, and Sfax. The fields are linked to these harbors by railroads.

The Moroccan ores come from the centers of Kourigba and of Louis Gentil. Kourigba, opened up in 1921, produces high-grade ore (75 percent tri-calcium phosphate); Louis Gentil, worked since 1933, produces ore of an average content of 75 percent. The yearly yield of the Kourigba field and works approaches 3 million tons, that is to say, a quarter of the prewar local consumption. The Moroccan phosphates are a grayish white in sandy formation, barely held together by a weak cement. The lower portions of the beds are heavy brownish-yellow gravel. The entire production is exported from the harbors of Casablanca and Safi. A small proportion is made into superphosphates. There are also produced phosphate fines from the cleaning of the dust of the drying kilns, which are used locally.

On the island of Mekatea in Oceania there is an annual production of 200,000 to 250,000 tons of ore of 87 percent grade in a dry state.

Indo-China produced before the war 30,000 to 40,000 tons per year, used locally. In the region of Leokay (Indo-China) between the Red River and the Fan Si Pan River is a very important field of apatite with a content varying between 18 and 41 percent P₂O₅. Worked from 1940 to 1944, this field produced 200,000 tons of apatite of which 160,000 tons were taken by the Japanese.

In French Western Africa in Cive (Mauretania) some fields have been discovered, but not worked. Their content is 55 to 60 percent of tri-calcium phosphate and in Tamagueliel (Sudan) there is an area with a content of 60 to 70 percent. In the region of Thies (Senegal) several millions of tons of aluminum phosphate have been found with a content of 28 to 30 percent phosphoric anhydride and 25 to 27 percent alumina.

Mention may be made of the small and more or less exhausted fields of Madagascar, New Caledonia, French Guiana and Clipperton.

The French production of phosphates reached its peak in 1930 of 6,540,000 tons. At the time of the world depression it fell to 3,380,000 tons. In 1932 it went up to 4,270,000 tons and in 1939 it was stopped by the war. There was produced in 1943 only 1,430,000 tons. Since, with the reconstruction of plants and harbors that have been destroyed, the replacing of worn or antiquated machinery has raised the production to 5,700,000 tons, equaling in 1947 the prewar production.

France uses yearly about 1,500,000 tons of phosphates and exports the rest. The shipments are sent to the same countries as before the war. Europe takes four-fifths of the output. The most important customer is Great Britain. Considerable quantities are shipped to Australia and New Zealand, but these shipments have become smaller and more irregular since the islands in the Pacific have begun producing again. The phosphates of Mekatea (Tahiti) are shipped directly to Australia and New Zealand.

The North African phosphates are sold exclusively by a single firm, the "Comptoir des Phosphates de l'Afrique du Nord," according to an agreement between the Algero-Tunisian producers and the Cherifian Phosphate Office. The "Comptoir des Phosphates" allocates sales quotas to each of the two groups.

PROMINENT MEN IN INTERNATIONAL MINING

Sir Ernest Oppenheimer, chairman of the Anglo-American Corporation of South Africa, recently left the Union for a four months' stay in England.

J. A. Swart is now assistant job manager with *Foley Hermanos* on a new sulfide plant for the Chile Exploration Company at Chuquicamata, Chile.

Dr. Frank Stillwell of Melbourne was recently awarded the 1948 medal of the Australasian Institute of Mining and Metallurgy. Dr. Stillwell, whose contributions to Australian mineralogy have won world-wide recognition, is in charge of the mineralogical section of the C.S.I.R.

Nils Nilsen returned recently to Fiji after an extended visit to Australia.

Robert Annan, chairman of Consolidated Gold Fields of South Africa and of New Consolidated Gold Fields, recently flew from London to perform the opening of the Rand's newest reduction plant at the Libanon gold mine.

Fridtjo Langseth, mechanical engineer, and *Odd Evensen*, mining engineer, of Oslo, Norway, were recent visitors on Minnesota's Mesabi iron range, where they studied open-pit mining methods and equipment.

Carlos Almazan, general superintendent of the Limon mine of the Empresa Minera de Nicaragua, is taking his leave in Mexico City and New Mexico. *E. C. Hagie*, mine superintendent at the Limon, recently returned from his leave in the United States.

Frank F. Davis, who has represented the E. J. Longyear Company at Nanking, China, is now at the Minneapolis, Minnesota office of the company.

J. M. Newman has been appointed acting chairman of Mount Morgan, Ltd., in the absence of Chairman E. J. Morgan, who left Australia recently for England.

Norman Cleaveland, president of the Pacific Tin Consolidated Company, left the United States recently to return to his company's operations in Malaya.

Joao Mendes Franca, chief of the experimental teaching, Metallurgy Division of the Technology Institute of the University of Sao Paulo in Brazil, is now on sabbatical leave in the United States, where he will carry on additional studies before assuming his new position of chief

engineer for Cia. de Acos Especiais Itabira S. A.

R. W. Diamond, vice-president and general manager of the Consolidated Mining and Smelting Company at Trail, British Columbia, has been awarded the Julian C. Smith medal of the Engineering Institute of Canada for achievement in the development of Canada.

Charles H. Behre, Jr., vice-president of Behre Dolbear and Company, New York City, left the United States recently for Rangoon, Burma, where he will make his headquarters. The firm has been appointed general consultants and technical advisers on minerals for the Burmese government.

C. J. W. Wilson has joined the staff of the Imshi and Birkdale mines in Southern Rhodesia.

Philip Lauzon, formerly with the South American Development Company in Ecuador, and with Ingersoll-Rand Company for two years, re-

cently joined the staff of the Neptune Gold Mines at Bonanza, Nicaragua, as master mechanic.

M. E. Volin, mining engineer with the U. S. Bureau of Mines at the University of Utah, left the United States for Afghanistan in the middle of April to conduct a survey on the development and valuation of mineral resources for the government.

DeWitt Peck, mine superintendent of the San Luis Mining Company at Tayoltita, Durango, Mexico, has been a recent visitor to the United States.

B. Beringer has been appointed manager of Paliet Chrome Mines, Ltd., operating in South Africa.

C. D. Michaelson, general superintendent of the Braden Copper Company in Chile, has been visiting in the United States.

D. N. Spencer, vice-president and general manager of La India and Empresa Minera de Nicaragua, both in Nicaragua, recently made a business trip to the United States.

S. G. Menell has joined the boards of the Welkom Gold Mining Company and the Blyvooruitzicht Gold Mining Company, operating in South Africa.

E. I. Mills, consulting engineer of Phoenix, has taken over the management of the Comstock Extension Mining Company, Globe, Arizona, which will rehabilitate the Irene base metal property and open an old manganese deposit.

Fred L. Wolf of Newport, Washington, was recently elected president of Grandview Mining Company, Metaline Falls, succeeding *H. Louis Schermerhorn*, president for many years, who declined re-election because of ill health.

Ray D. Nolan, director of the Minnesota division of lands and minerals, has announced the following changes in personnel, occasioned by the recent death of *Howard V. Reusswig*, assistant chief mining engineer. *Roy C. Pascoe*, district engineer on the Cuyuna Range and lake-bed district, succeeds Reusswig; *W. J. Dwyer*, district engineer for the eastern Mesabi Range, becomes general district engineer on all three ranges; *Peter A. Stark* succeeds Dwyer as district engineer; *B. J. Nicholson*, *Anthony T. Vellella* and *Donald Mellem* have been appointed district mining inspectors. *H. A. Lever* is chief mining engineer.

Frank Murphy, general superintendent for the Western Knapp Engineering Company, arrived recently in Turkey to start construction work on the Ergani flotation plant and the Guleman chromite concentrator. Other technical personnel from the United States will follow Murphy shortly.

D. Stanmore has resigned his position with the New Occidental Mines at Cobar, New South Wales, to accept the position of mill superintendent



HARVEY S. MUDD

president and managing director of Cyprus Mines Corporation which operates extensive copper properties in the Mediterranean, has been awarded the Egleston Medal, presented annually by the Columbia University Engineering School Alumni Association for distinguished engineering achievements. A 1912 graduate from the Columbia School of Mines, Mudd was a former president and director of the A.I.M.E. and is currently a member of the National Minerals Advisory Board.

for Geita G. M. Company of Tanganyika, East Africa.

C. E. Rogers, for 15 years general manager and more recently consultant for Sylvanite Gold Mines in Ontario, has been appointed general manager of Gulf Lead Mines, operating on Hudson Bay.

L. A. Crozier, who has been on the staff of the Patino mining group in Bolivia for the past three years, is now taking a short vacation in Australia.

Professor J. A. S. Ritson was recently re-elected president of the Institute of Mining Engineers in London for 1949-50.

H. E. Arblaster has resigned his position as chief metallurgist to Stokes and Sons Pty., Ltd., Brunswick, Victoria, to accept the position of technical manager for Tantalite, Ltd., in Western Australia.

P. G. Endicott has been appointed a director of the British Malayan Tin Syndicate.

F. S. Hallett has joined the board of the Blyvooruitzicht gold mining firm, operating on the Rand in South Africa.

Jack Creighton has been appointed mine foreman for Kaslo Silver Lead Mines in British Columbia.

Essington Lewis was recently elected a member of the Institution of Engineers in Australia.

W. S. Robinson and his son, L. B. Robinson of Broken Hill Pty., have been inspecting properties in Western Australia, accompanied by F. Espie of Western Mining Corporation, G. Fisher of Zinc Corporation and A. Williamson of Coolgardie Gold Mines.

L. Edwards has been appointed secretary and J. M. Davis assistant secretary of Gold Mines of Kalgoorlie, Ltd., and Gold Exploration and Finance Company of Australia, Ltd.

E. Noske has succeeded the late W. C. Gall as chairman of directors of the North Deborah mine, Bendigo, Victoria.

E. L. Longmore, general manager of Hollinger Consolidated Gold Mines, Ltd., Toronto, Ontario, recently announced the following personnel promotions: E. P. Thompson has been made assistant mine superintendent; Joseph Disley replaces Thompson as supervisor of mine production; George Webber has taken the position of supervisor of mine maintenance and services, and George White becomes mine captain, the position formerly held by Webber.

Gordon Edward has taken the position of master mechanic with Steep Rock Iron Mines, Ltd., in Ontario.

Dr. John F. Thompson has been elected president of the International Nickel Company, Inc., according to a recent announcement by Robert C. Stanley, chairman of the board of directors. Thompson has been executive vice-president since 1936 and is now succeeded in that position by Dr. Paul D. Merica.

MAY, 1949



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NORTH AMERICA

CALIFORNIA—Five giant dredges are being operated in the Hammon-ton area near Marysville by *Yuba Consolidated Gold Fields* in an extensive dredging program. Red-dredging of 5,000 acres is scheduled for this year as well as considerable virgin ground. The firm's operations are now being conducted at the highest level since 1941 when the gold output totaled 171,583 ozs. Present annual production is approximately 100,000 oz. of fine gold with small quantities of platinum and silver.

MEXICO—The *San Luis Mining Company, S.A.*, has reported the discovery of a rich gold-silver deposit during exploration work at the old *Santa Rita* mine in Durango, Durango. The virgin deposit is reportedly 28' wide, with ore said to assay as high as 15 grams gold and 800 grams silver per ton. The mine, worked superficially by the Spaniards in 1758, has been idle since that time.

NOVA SCOTIA—Baryte mining operations are expected to begin this summer, following the successful results of two years of drilling carried out by the Department of Mines. Latest tests indicate good widths of white barytes which command the highest price on the market. Canada's only baryte operation at present is at Walton.

NEVADA—Operators of the old *Mina quicksilver* property near *Mina* are reported to be preparing to resume production, following the discovery of a new cinnabar deposit in the mine, formerly one of Nevada's chief mercury producers.

ALASKA—Gold mining in Alaska last year showed a decided decrease from the output in 1947, the Juneau office of the U. S. Bureau of Mines has announced. Also declining was the silver output, which showed 12 percent less than the preceding year. Lead gained 17 percent, while copper and zinc production, wholly a by-product of other ores, remained relatively small. Preliminary estimates for 1948 in terms of recoverable metal showed 226,323 fine ozs. gold, 58,947 fine ozs. silver, 19 short tons of copper, 309 tons of lead and 12 tons of zinc. Production in 1947 was 279,988 ozs. gold, 66,150 ozs. silver, 12 tons copper, 264 tons lead and 25 tons zinc.

NEW BRUNSWICK—Drilling operations have been started by the *Kayrand Mining and Development Company* at its recently acquired lead-zinc property near Woodstock.

SASKATCHEWAN—*Pen-Rey Gold Mines, Ltd.*, is making preparations for the early exploration of three groups, consisting of 102 mining claims in the Great Slave Lake area. The recently acquired properties cover an area of over 5,000 acres where promising copper-lead-zinc-silver occurrences have been found. Exploration activities will be under the direction of Chamberlin Management Corporation.

COLORADO—*Chain-O-Mines Operators, Inc.*, of Central City has now completed the first unit of its mill, which will have an ultimate capacity of 6,000 to 10,000 tons daily. Future plans call for the installation of an underground crusher which discharges onto an underground belt conveyor, delivering the product to the mill bins at the surface. At the present time, the ore is caved in the glory hole to the 300' level and trucked to the new mill, awaiting completion of the inclined shaft and belt installation. Ore values are in gold, silver, lead, zinc and copper.

ONTARIO—With improvements in the crushing and milling facilities completed, *Bi-Ore Mines, Ltd.*, has doubled the production of copper concentrates at its property in the Sudbury mining district. Since production began last September at an initial 50 to 70 tons daily, a total of 500 tons of concentrates has been shipped to the smelter. The ore is being mined from a vein type occurrence which has a reported grade of 5 percent with a small amount of gold.

BRITISH COLUMBIA—The *Consolidated Mining and Smelting Company of Canada, Ltd.*, operating the huge smelter at Trail, the Sullivan mine at Kimberley and a number of other mines throughout Canada, is reported to have optioned 75 silver-lead-zinc claims in the Kamloops mining district between Shuswap and Adams Lakes.

SASKATCHEWAN—Negotiations for major financing are now under way between *O'Connor Lake Syndicate* and two United States groups for the further development of O'Connor's extensive properties on the south shore of Great Slave Lake. Diamond drilling, which is continuing through the winter, is estimated to have outlined \$1,500,000 in ore. Principal values are in lead, and some 100 tons of ore from open cuts is said to have averaged over 70 percent lead, three percent zinc, and 2 1/4 oz. silver per ton. The company is now in the process of incorporation, with capitalization at 5,000,000 shares of \$1 par.

ONTARIO—Canada's second largest nickel producer, *Falconbridge Nickel Mines, Ltd.*, has taken over from the *Aero Prospecting Syndi-*

cate, the *Rexora Mining Corporation* properties on which geophysical work and diamond drilling already have been started. *Aero*, which also has a group of claims under option to *International Nickel*, received 1,500,000 shares of *Rexora* capital stock for the properties. Now, with all its base metal properties under active development, the syndicate is turning its attention to the uranium fields.

MICHIGAN—Several Michigan iron mines which have been closed down for many years as unprofitable have now been reopened or are being explored further with a view toward resuming operations. Among these are the *Zimmerman*, the *Berkshire* and the *Tully-Bengal* and the *River-ton* in the Iron River district, and the *Warner* and *Bristol* near Crystal Falls. Companies showing interest in the long-idle former producers are: *Pickands Mather & Company*; *Cleveland Cliffs Iron Company*; *Inland Steel Company* and the *North Range Mining Company*.

MINNESOTA—Pumping operations are being continued by the *Oliver Iron Mining Company* at the *Gilbert* mine in Gilbert, preparatory to mining and stripping. The property, which has not been mined since 1914, is listed as having a reserve of over 10,000,000 tons of high-grade iron ore. An adjoining property, the *Gilbert Reserve* which has never been mined, will be included in the operations planned by the company. The latter property is said to have a 400,000-ton reserve of high-grade ore.

BRITISH COLUMBIA—According to President R. E. Stavert of Montreal, the *Consolidated Mining & Smelting Company* is contemplating entry into the steel production field with the erection of a pilot plant at Kimberley, adjacent to the Sullivan base metal mine where tailings have been accumulating for the past quarter of a century. The tailings are said to contain a large amount of iron ore which would provide feed for the pilot plant. Consideration is being given to the treatment of these tailings by electric furnace process for the production of pig iron, with necessary power being provided by the company's hydro-electric plants on the Kootenay River.

ALASKA—A 125-ton cyanide plant is being placed in operation at the *Dolomi* gold mine of *Santiago-Alaska Mines, Inc.*, on Prince of Wales Island in southeastern Alaska. Mechanization throughout the plant has been emphasized, with a view toward making the operation independent of climatic and external conditions. Producing gold bullion rather than concentrates, shipping tie-ups and smelter disturbances will have no disastrous effects on a year-round operation.

ONTARIO—*Norpick Gold Mines, Ltd.*, has completed a geophysical survey on its gold-copper property in the Shebandowan Lake area, 80 miles west of Port Arthur. The work revealed several anomalies, including one having an outlined length of 1,600' which is now being tested.

NORTHWEST TERRITORIES—Additional payments under the Federal Government's Emergency Gold Mining Assistance Act are enabling *Thompson-Lundmark Gold Mines, Ltd.*, to resume development work at its property near Yellowknife, according to President Fred Thompson. The payments were made in recognition of the company's Kim mine which began production on January 1, 1948.

SASKATCHEWAN—*Consolidated Astoria Mines, Ltd.*, has let a contract to James McAvo, discoverer of the base metal deposits north of Great Slave Lake, for a diamond drill program on its property in the Indian Mountain Lake area. First drilling will explore a break that has been indicated for a length of over 2,000'. A geophysical survey is also planned on the property which adjoins that held under option by Hollinger Exploration, Noranda and Mining Corporation of Canada.

ARIZONA—After 15 months of construction work, *Magma Copper Company's* new 1,500-ton mill has started capacity operations at Superior. Completely modernized and with a 300-ton larger capacity than the original plant, the new mill has all machinery in the open, overhead cranes to handle the ore, a modernized flotation system, and more working room. Other new features include: A new steel completely fire-proof mill building; central operation of the plant through a panel which controls the pumps, elevators and all machinery; sloping floors to facilitate cleaning, and modernized lighting to replace windows, thereby keeping the light constant. A crew of 32 is employed.

IDAHO—A new antimony property emerging as a substantial producer is that operated by the *Hermada Mining Company* on the middle fork of the Boise River, 20 miles southeast of Atlanta. Prospecting operations were started in June 1947 by Ernest Oberbillig, Gilbert Peterson and Herman Miller, principals in the Hermada firm, and a contract was signed with Goldsmith Brothers of Chicago, who agreed to purchase the entire output of the mine for a 12-month period. According to Oberbillig, the mine's output has averaged 70,000 lbs. of antimony monthly, totaling 800,000 lbs. to date. Success of the Hermada operation and construction of the million-dollar smelter at Stibnite have

proved to be a fillip to prospectors who are now combing the area for new deposits.

ONTARIO—As part of its five-year underground development program, *Chesterville Mines, Ltd.*, is now excavating on the 20th level for installation of a new 1,200-ton daily capacity crusher to replace the well worn surface crusher now in operation. Company officials estimate the new plant will save 30c a ton in handling charges at the mine.

BRITISH COLUMBIA—According to President Karl J. Springer, *Guillim Lake Gold Mines, Ltd.*, is planning to start production from its recently acquired *Hot Punch* lead-zinc-silver claims in June and from its *Mineral King* group soon after. On the *Hot Punch* group, the ore occurs over a length of 2,500', with widths varying up to 2.5'. On the *Mineral King* group, there is said to be a possibility of developing sufficient lower-grade material, in addition to the shipping ore, to warrant construction of a mill.

QUEBEC—Having completed its mill expansion program at a total cost of \$209 thousand, *Senator Rouyn, Ltd.*, Noranda, is now maintaining an increased mill rate of 600 tons daily. Mine manager J. C. Houston said recently that the company will have an operating profit of \$450 thousand this year, including aid under the Emergency Gold Mining Assistance Act. Ore reserves are estimated at 616,000 tons, sufficient for three years of operations at the present mill rate.

SASKATCHEWAN—According to present plans of *United Asbestos Corporation*, a shaft is to be sunk to a depth of 550' on the east shore of Black Lake and lateral work carried out on the 500' level. The company now has six diamond drills testing the area beyond that drilled from the east shore which consulting engineer P. M. Malouf has estimated to contain upwards of 68,000,000 tons of ore, averaging 4¼ percent asbestos.

NEVADA—Gold dredging firms, including *Yuba Consolidated*, *Round Mountain Gold Dredging*, *Fresnillo Corporation* and *Golden Queen Mining Company*, are now engaged in drilling seven 16' wells in Smoky Valley near Round Mountain, to supply water for projected gold dredging. Drilling is expected to reach a maximum depth of 1,000'.

BRITISH COLUMBIA—The *Sunloch* copper mine near the Jordan River on southwest Vancouver Island has been taken over by *Hedley Mascot Gold Mines, Ltd.*, and a new company with \$3 million capitalization is being formed to operate the property. Discovered in 1915, the mine has an estimated reserve of 600,000 tons of 2 percent copper and has long been regarded as one of

the most important potential producers on Canada's west coast. According to Victor Creeden, general manager, the property will be developed into a steady producer, with concentrates going to the Tacoma smelter of the American Smelting & Refining Company.

ALASKA—Clifford Smith and Dave Browne, principals in the *Arctic Tin Company*, report they will use a dragline and elevated jib washing plant in their operations during the 1949 season. Development work was carried out last season on the property, which is on Buck Creek, east of Cape Prince of Wales.

ONTARIO—Having indicated an estimated 120,000 tons of lead-zinc ore, *Matarow Lead Mines, Ltd.*, is currently engaged in a program of deeper drilling to test ore extensions to the 300' level. The present program is expected to provide a basis for mill considerations.

MEXICO—Contending that full exploitation of mineralized virgin areas would go far toward solving Mexico's economic problems, the Mexican miners union has asked President Miguel Aleman to order exploration of such zones. The union pointed to the success of exploration work now being conducted in Oaxaca by the national commission for stimulation of the mining industry.

ONTARIO—Preparations are being made by *Castle-Trethewey Mines, Ltd.* for the unwinding of the old *Capital* silver mine at Gowganda, idle now for 17 years. Several months will be required to get the mine into production, as all broken ore was cleaned up before suspension of operations, and new stopes must be prepared. Before placing the 125-ton mill in operation, company officials plan on having sufficient ore in sight for a year and a half.

BRITISH COLUMBIA—*Yale Mining Company Ltd.*, operating in the Ainsworth district, has opened the *Highlander* vein 1,000' below its surface outcrop as the first step in preparing the properties for a 300-ton daily mill operation. Good grade ore is said to be showing in the drift floor. The company's next step will be to extend the Mamie tunnel to the Mamie vein, connecting with the *Highlander* tunnel for ventilation, after which the Mile Point adit will be driven to service the mill.

QUEBEC—*Elder Mines, Ltd.* has completed its shaft sinking program from the 640' to 1,200' level and is now starting to open the No. 1 vein on the 800' and 1,000' levels. Operating profits during the sinking period equalled the \$75 thousand cost of the work. According to mine manager A. H. Honsberger, ore shipments to Noranda will be up to 12,500 tons a month by next August.

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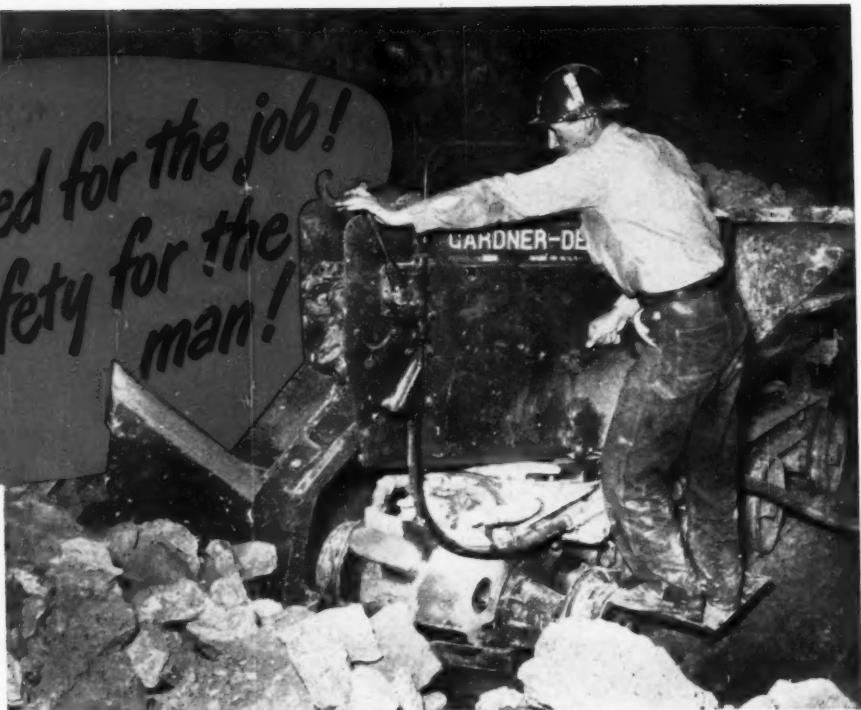


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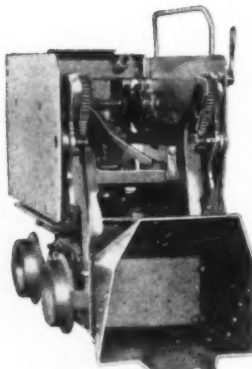
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INTERNATIONAL

MEXICO—Mexican mining is getting better rail transportation with the successful application of a plan for scientific shipments developed by representatives of the mining companies and by the National Railways, which the Mexican government operates. This plan, which features examinations of mines' average monthly production to supply locomotives, cars and arrange schedules, moved 74,860 tons of ore in one month from mines in Northern Mexico to various smelters. Mines thus served have an average total monthly production of 110,700 tons. The plan is to be extended to mines in other parts of Mexico, the announcement said.

ALASKA—Lloyd Root and the Lomen brothers of the *Pancake Mining Company* are freighting mining equipment into their property above Council on Pancake Creek in preparation for the 1949 season. The operators are exploiting newly discovered ground in the district.

QUEBEC—*Pandora Cadillac Gold Mines, Ltd.*, which purchased seven claims in Cadillac township from *Amm Gold Mines, Ltd.*, in 1940, has now been granted a three-year option to purchase the mining and milling plants formerly owned by Amm for \$50 thousand. At present, Pandora is awaiting more favorable conditions before resuming operations.

BRITISH COLUMBIA—The underground crew at the *Bosun* mine of *Santiago Mines, Ltd.*, is being increased, which is expected to result in an additional monthly output. Regular shipments of high-grade silver-lead and silver-zinc ores are being made to the smelter at Trail. Production from the company's *Hartney* mine, adjoining the Bosun in the Slocan mining division, is expected to start soon.

QUEBEC—*Eldona Gold Mines, Ltd.*, operating a gold-base metal property in Rouyn township, has started a diamond drill program from the surface which will be continued during shaft sinking. Extension of the shaft from the 1,000 to 1,500' level is now under way.

MEXICO—Profitable exploitation of important gold, silver, lead and antimony deposits in El Triunfo region south of La Paz, Baja California, was recently declared feasible by Carl Fries, H. Gordon Poole and George M. Potter of the U. S. Bureau of Mines geological service, who examined the area with Manuel Villafana, director of the national commission for the stimulation of the mining industry. As a result of the American geologists' report, the Mexican government is said to be planning development of these deposits and establishment of metal

treatment plants in the region. El Triunfo deposits were worked superficially in Spanish colonial times some 300 years ago.

BRITISH COLUMBIA—Ore shipments have been suspended temporarily by *Hedley Monarch Gold Mine, Ltd.*, in the Osoyoos mining division to permit the previously announced diamond drilling program to be carried out. The first objective will be to prove a minimum depth of 100' below the tunnel level and to prove the extension of the Sweetner vein.



VICTORIA—Although the *South Virginia Gold Mining Company, N.L.*, at Bendigo showed a working loss of £5,299 to the end of 1948, Chairman Trembath said recently that prospects are encouraging, as the main Eaglehawk crosscut will intersect the reef about 600' north of the shaft, with possible enrichment.

WESTERN AUSTRALIA—From a recent crushing of 824 tons, *Mountain View Gold, N.L.*, at Cue, obtained 3,500 ozs. gold. Company plans included the crushing of 1,000 tons of second grade ore, estimated at six dwt. per ton, during March, and 400 tons of main shoot ore during April.

NEW SOUTH WALES—The high ruling prices for base metals have decided *Broken Hills South, Ltd.*, to work low-grade ore blocks remaining in levels above 640' in the old B.H.P. leases at Broken Hill. The ore is oxidized, and some modification of the sulphide treatment will be necessary.

SOUTH AUSTRALIA—C. E. Blackett of *Australian Development*, operating on Tennant Creek, reports that positive and probable ore reserves total 93,475 tons, giving the mine an estimated value of £1,003,860. Provided labor and materials are available, the purchase of the property and planned development should be accomplished by March of next year. The company recently crushed 360 tons for 722 ozs. of gold, and an additional five-head battery is now operating.

NEW GUINEA—Rehabilitation of *Bulolo Gold Dredging, Ltd.*, operations was completed recently when the eighth dredge started digging. According to company secretary Charles Clark, 895,000 cu. yds. of gravel was handled by seven dredges in the month of February for a recovery of 4,976 ozs. of fine gold. Bulolo's peak production was achieved in 1940 when the eight dredges accounted for 195,016 ozs.

AUSTRALIA—J. F. Waldron, Prices Decontrol Commissioner, has increased the maximum price of scrap copper from £130 to £150 a ton, effective March 21.



KALGOORLIE'S GOLDEN MILE

Since its discovery fifty-six years ago, the Golden Mile at Kalgoorlie, Western Australia, has produced more than £150,000,000 in gold from its East Coolgardie field. Far from being exhausted, the area today is said to be capable of increasing its present production. Said to be the richest square mile of auriferous country in the world, the Golden Mile supports the twin cities of Kalgoorlie and Boulder, with a population of about 25,000. The air photo, seen above, shows the surface works, which are thickly interspersed with roughly symmetrical flat-topped residue dumps and shapeless hills of pulverized waste. Some of the mines are nearly a mile deep.

ANTARCTIC—Members of the recent Australian scientific expedition to Heard Island returned home with gold specimens, discovered by A. J. Lambeth, geologist of Sydney. Lambeth was reported as saying that, by coincidence, the party camped almost on top of the old gold found.

TASMANIA—The *Electrolytic Zinc Company of Australasia* reports that extensions of existing orebodies at the *Rosebery* mine have been disclosed by 7,000' of drilling.

NORTHERN TERRITORY—Director of Mines Coxon has expressed satisfaction with the development of the *Home of Bullion* mine at Barrow Creek and said that if prospects of the past six months are maintained, a large-scale proposition is imminent. Mr. Becker, part owner of the property, reported that an assay of 67 samples showed an average of 22 percent copper. Leo Lyons of the *Electrolytic Smelting and Refining Company* is now engaged on a more exact sampling of the ore.

WESTERN AUSTRALIA—*Rare Metals, Ltd.*, has applied for a three-month exemption on its dredging claim at Cheyne Bay while awaiting government approval for a factory site and permission to build. Only a portion of the plant has been delivered.

VICTORIA—A new find is reported on *Toohy Brothers* lease at Bolwarrah, near Egerton, until recently held by the *Gordon Gold Company*. The company had worked out a rich lode, and it is thought the new reef may be a continuation of that lode. A prospecting shaft has reached a depth of 18'.

TASMANIA—Doubled production is expected by *Renison Associated Tin Mines N. L.* in the near future when its new grinding section is placed in operation.

NORTHERN TERRITORY—Officials of *Australian Development N. L.* report that the Noble Nob crosscut advanced from 115' to 118' with eight dwt. values, and from 118' to 123' with five dwt. values. Up to 40 dwt. values have been disclosed in the lowest drives. The company recently milled 225 tons for 293 ozs. of gold.

AUSTRALIA—According to Minister of Supply Armstrong, retention of tin plate control by the Government is necessary, as Australian stocks of tin plate are barely sufficient for local industry, although increased amounts from Great Britain have been received.

TASMANIA—Comparatively disappointing results from the *King Island Scheelite, Ltd.*, operation have been attributed to over-optimistic estimates of ore grade and of recovery by the new mill, Managing Director A. R. Bruhn announced. The company's difficulties were further

aggravated by poor shipping service, which necessitated mine machinery being flown in at high freight rates. In addition, working costs increased greatly.

VICTORIA—The State Government has granted an advance of £3,000, free of interest and without security, to *Maxwell Consolidated* at Daylesford to carry on development work approved by the State Mines Department.

WESTERN AUSTRALIA—The State Government has offered to advance £10,000 on special terms to the *Great Fingall Exploration Company, Ltd.*, which will carry out an extensive exploration program on its three properties on the Day Dawn goldfield, adjacent to the Mountain View mine. Seeking a recurrence of the Great Fingall lode from which the Mountain View firm has already produced 38,500 ozs. from 11,500 tons, the company has engaged *Australian Drillers Pty., Ltd.*, to drill up to 3,500'. Between 1897 and 1917, Great Fingall produced 1,866,000 ozs. gold from 1,185,000 tons of ore. Directors of the firm include: H. J. Connolly, O. Vincent, I. D. Cameron, E. Blanckensee and Dr. F. A. Moss.

NEW SOUTH WALES—*Silver Peak (Broken Hills), Ltd.*, has issued new preference shares to finance operations on the *Umberumberka* silver mine at Silverton. A cyanide plant will re-treat a tailings dump, estimated to contain 40,000 tons.

QUEENSLAND—Gold production in the state was down to 69,004 ozs. in 1948, 2,952 ozs. below 1947 production.

SOUTH AUSTRALIA—*Broken Hill Pty., Ltd.*, has resumed operations on the manganese deposits at Woodculla, 70 miles west of Port Augusta.

NEW GUINEA—Prospects are dim for gold producers in New Guinea, according to H. J. Hyde of the *Sandy Creek Company*. Not only is the price of gold fixed at an artificially low level, he said, but all gold is subject to royalty of five percent, irrespective of the cost of production. The company has obtained disappointing results at Sandy and Poverty Creeks, while the big flats and terraces in the Watut area need further development before their value can be assessed.

WESTERN AUSTRALIA—*Victory Exploration, Ltd.*, which holds the *Caledonia* mine under option from D. and E. P. Clews, will install a pilot plant to determine whether the property is suitable for large-scale operations. The new plant will treat ores from the *Red Ridge* mine and the *Three Mile* leases at Three Mile Hill near Coolgardie.

WESTERN AUSTRALIA—*Moolyella Tin Development, N.L.*, reports plans to acquire, equip and operate properties in the Moolyella field, 10 miles east of Marble Bar. Directors are M. R. McKeown, F. B. Murphy and A. P. Flockart.

WESTERN AUSTRALIA—Victor Hill has made a new strike on the *Melva Maie* leases near Bonnievale, reporting that 8½ tons averaged 11.75 ozs. gold per ton.



INDIA—The question of gold mining and prospecting is currently receiving a good deal of attention from the Government of the State of Mysore in the southern part of India. As the capital is held mainly in British hands, proposed changes in taxation are designed to encourage gold mining and lengthen the life of the mine without doing much for the stockholders. In addition to taxation adjustments, the Government has suggested a change in the location of the company's management to Mysore. Asked to approve this agreement in London this year are: *Mysore Gold Mines, Champion Reef Gold Mines of India, Nundydroof Mines and Ooregum Gold Mining*.

CHINA—According to reports from Shanghai, Soviet officials have begun talks with representatives of the Chinese Foreign Ministry and the Northwest Provincial Administration to seek permission to exploit Sinkiang's mineral resources including metals used in steel production.

SIAM—The Siamese Government recently completed payment of £1,250,000 to British and Australian mines in compensation for tin ore extracted during the war, according to the chairman of the association of British and Commonwealth tin interests in Siam. He also said the Siamese Government has granted mines rehabilitation advances totaling £300,000.

INDONESIA—Reports from The Hague reveal that tin production on the islands of Bangka and Beliton, off the coast of Sumatra, has exceeded the 1938 level, while estimates put the total Indonesian exports of tin and cassiterite at 45,543 metric tons in 1948, more than double 1947's 22,000 tons.

BURMA—*Mawchi Mines* said recently that due to the political unrest in Burma, internal communications have been seriously disrupted; how-

INTERNATIONAL

ever, production amounted to 43 tons of the tin-wolfram concentrates in January and 45 tons in February.

MALAYA—Of the 45,739 tons of tin in ore moved from the Federation of Malaya mainland to Singapore and Penang last year, 29,695 tons came from Perak and 11,733 tons from Selangor. In 1947, only 26,927 tons were moved.

INDIA—It is reported that the Government of Madras has asked the Indian Government to construct an iron and steel plant near the large ore deposits found in the state.

CHINA—Recent Chinese tin exports to Germany are said to have gone for £496 per ton f.o.b. Hong-kong, or £500 per ton c.i.f. Hamburg.

INDIA—A 10-year plan has been launched by the Government of Mysore for the development of its Kolar gold mines and other gold deposits in the Tumkur district. Milling equipment was installed in August, 1947; however, it proved to be inadequate. Operations will move at an accelerated pace, it was said, as another government department has plans to flood the gold-bearing areas to build the Lakkavalli reservoir within the next 10 years.

CHINA—With substantial shipments of tungsten ore from China already received in New York, similar cargoes are reported to be en route. One view attributed to these heavy shipments has been that the Communists may soon have all China under control. The wolfram is said to be destined for the Critical Materials Branch of the U. S. Bureau of Federal Supply for stockpiling purposes.

INDIA—Various mineral concerns in India, including the gold mines in the State of Hyderabad, the manganese and iron ore mines at Sandur, and the aluminum industry at Berar and Kantpee, have been taken over by the various states which, unfortunately, have yet to train the technicians to run them efficiently.



EUROPE

ITALY—To compensate for the cession of the Istrian bauxite deposits to Yugoslavia, Italy will reopen the long-dormant mines in the Campagna and intensify operations in the Gargano area, it was reported recently. Annual export figures visualized include: Bauxite, 50,000 tons; zinc ore, 52,000 tons; pyrites, 50,000 tons, and mercury, 55,000 flasks.

AUSTRIA—A new electrolytic process for the production of zinc

from Bleiberg ores has been developed which will make possible the annual treatment of 8,000 tons of concentrates, or half the Austrian consumption.

CZECHOSLOVAKIA—Svatopluk Rada, general manager of the Czech State Mines, recently outlined the tasks faced by the mining industry in the next five years, most important of which will be the thorough examination of the Slovak ore deposits. The labor shortage is the most pressing problem of the industry, Rada said, and the Government will seek to improve the social conditions of

the mineworker to make his job more attractive.

HUNGARY—Experiments conducted by the Hungarian Aluminum Research Institute in Budapest are said to have shown possibilities of the successful recovery of vanadium from sludges obtained by the Bayer process for alumina production. The sludges contain up to four percent vanadium pentoxide.

ROMANIA—Near the Iron Gate of the Danube River, the Government is reopening the chromite deposits of Dubova which contain 20 to 22 percent Cr_2O_3 . The deposits

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were mined during both the first and second world wars.

YUGOSLAVIA — Recently released figures show that during 1948 Yugoslavia exported to Russia and associated states 72 percent of her copper, 62 percent of her antimony, 59 percent of her lead, 97.3 percent of her zinc, 72 percent of mercury and all of her iron ore. In 1949, however, Yugoslavia has announced her intentions of turning her metal export to the Western block in exchange for badly needed manufactured goods and equipment.

SPAIN — A contract was signed recently between the *Compania Minera Sierra Menera* and England for the delivery of 250,000 tons of Spanish iron ore during 1949. During the last half of 1948, Vizcaya exported 460,000 tons of iron ore to Britain. One-half of the foreign exchange returned for this was used for the importation of machinery by the Vizcayan mining industry.

GERMANY — Work is being pushed to complete the ore concentrating plant at the *Maubach* lead mine, where operations were started last November by the *Stolberg* group. Total investments for the development of the deposit are estimated at 14 million Deutsche marks (\$4.2 million). It is believed that the mine may eventually yield about 20,000 tons of lead and more than 10,000 tons of zinc annually.

SWEDEN — In a report to the Swedish government, the Geological

Inspection Department stated that known iron ore fields are capable of providing all the ore that can be transported and marketed in present circumstances. The department added that it was not reasonable to expect the government to bear the burden of heavy prospecting expenses which could only be recouped in the very distant future. Investigations are now proceeding in the rock formations in the province of Norbotten.

ENGLAND — British steel interests are reported to be interested in obtaining about 2,000,000 tons of iron ore annually from Labrador and the Ungava area. To this end, reports indicate, the British interests are making plans to enter the Canadian mining field.

GREECE — The E.C.A. Mission has undertaken the task of arranging for an American or European firm to make a geophysical survey of Greek mineral resources, emphasizing lignite, lead, zinc, chrome, manganese, iron ore and petroleum.

SPAIN — Under state protection, the working of the lead deposits of *Sierra Almagrera* will begin in a short time. Results of prospecting have been good and indicate the possibility of mineralization in virgin territory and the probable existence of other metallic minerals.

CZECHOSLOVAKIA — Recent trade negotiations have resulted in an agreement whereby Russia will supply Czechoslovakia with heavy

mining equipment in exchange for oil equipment. Another outstanding feature of the agreement is that Russia has granted Czechoslovakia a loan in gold, amount of which has not yet been stated. It is presumed that the gold will be used in the future to purchase on the Western markets raw materials and special equipment, shortages of which have been one of the main obstacles in fulfilling the five-year plan.

YUGOSLAVIA — Discovery of new lead-zinc deposits are reported in the *Plevlje* area of Montenegro, the southwestern part of Serbia.

HUNGARY — A Hungarian committee on the behalf of the country's bauxite mines recently concluded conferences in the *Bizone* of Germany and announced that bauxite shipments from Hungary to Western Germany will be continued.

BIZONIA — Iron ore production in Germany's *Bizone* reached 6,500,000 tons in 1948, of which nearly 5,000,000 tons were mined in the British zone. A production of 8,500,000 tons is hoped for in 1949.

CZECHOSLOVAKIA — Targets set for the mining industry under the two-year plan (1947-48) were achieved by 99.8 percent in 1947 and 100.1 percent in 1948, it is reported. Figures for the same periods in the metallurgical industry were 111 percent and 106.3 percent for the two years. Production figures were not available.

HUNGARY — By a \$25 million trade agreement with Czechoslovakia, Hungary will receive coke, chemical and refractory materials in exchange for her pig-aluminum.

GERMANY — The tungsten mine at *Pechtelsgruen* in *Vogtland* in the Russian zone, where operations were resumed in 1947, is currently producing 7.5 tons of tungsten monthly, with plans to increase output to 10 tons.

NORWAY — *Det Norske Nitrid A S*, Norway's largest aluminum refinery, is making plans to increase its annual production capacity from 11,000-12,000 tons to 15,000 tons.

GERMANY — The lead-zinc mine of *Wiesloch*, which resumed operations on a limited scale last July in the vicinity of *Heidelberg*, is now producing one ton lead and 70 tons zinc concentrates monthly. The concentrates are shipped to the smelting plants of *Stolberger Zinc AG* in the *Rhineland* for further treatment. The mine is operated by the *Stolberger* group.

CZECHOSLOVAKIA — Included in the five-year program beginning this year, the government is planning to increase ore production from the Slovak part of the country. An important step toward this goal will be the establishment of a school of mining and metallurgy at *Banska*



SWEDISH IRON ORE OPERATION

Such structures as these, skillfully engineered and constructed of reinforced concrete, are common to the mining industry of Sweden. This surface plant and concentrator are part of the installations of the *Grangesberg* iron mine in central Sweden, owned by the *Trafic Company Grangesberg-Oxelösund*. Shown is the housed-in headframe that accommodates a three-compartment central shaft and permits comfortable operation even in the coldest weather. All buildings are weather-proofed and attest to the progressive attitude of the management.

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Bystrica. Slovakia has not had a mining engineering education center since the change of regime in 1919. Prior to that time, there was a mining academy at Banská Stianica in the Slovak territory, established by Empress Maria-Therese in 1735 and recognized to be the first institution of its kind in the world.

HUNGARY—A trade agreement has been concluded between Hungary and Italy whereby Hungary is to import Italian mercury.

NORWAY—Production of pig iron has started at the *Ardal Works*, and it is expected that the first deliveries of rolled billets and wire rods will be made by the end of the year.

GERMANY—It is reported that the *Mansfeld* mine in the Russian zone is currently producing approximately 12,000 to 13,000 tons of copper annually.

SPAIN—Garcia Ramal, chief of the *Spanish National Metal Syndicate*, has announced that Spain should be able to produce 750,000 metric tons of steel in 1949, reaching an output of one million tons within three years.

AUSTRIA—Repairs are nearing completion on the open hearth furnaces of the *United Austrian Steel Works* of Linz, Upper Austria, built during the war by the Goering Works and damaged lately by an explosion.

CZECHOSLOVAKIA—Construction of the zinc sheet mill at *Kladno* is reported to have reached the final stages.

GERMANY—Iron, of which there is a considerable shortage in the Eastern Zone, is among the products being offered to Denmark in return for foodstuffs. Although its industry is well developed, Denmark has no iron producing plants of its own.

ITALY—Under the Italian four-year plan, modernization of mining equipment and intensive investigations of potential resources are expected to raise the production of iron and copper pyrites considerably. In addition, zinc ore output is expected to reach 210,000 tons and lead ore 67,000 tons annually. In heavy industry, an output of 1,400,000 tons of pig iron and 3,000,000 tons of raw steel is hoped for by 1952-53.



LATIN AMERICA

COLOMBIA—Increased gold and silver production is noted in Colombia, where the month of February produced 1,224,871 and 352,690 grams pure, respectively, as compared with 1,009,466 grams pure of gold and 281,631 grams pure of silver in January. Should production continue at

this rate, it is expected that production for the current year will reach 450,000 ozs., a figure which has not been reached in several years.

BRAZIL—An intensive exploration program is currently under way at *Guaracaba* in the *Cavalcanti* district of the State of *Goiás*, where more than 1,000 workers are digging.

VENEZUELA—Equipment engineers who are familiar with the work that has been done say that American steel companies have already spent \$40 million in developing Venezuela's iron ore resources, with production scheduled to begin in 1950. One of the areas under development has been in the foothills of the *Guiana* highlands near *El Pao*, where some 50,000,000 tons of ore, with a 63 percent iron content, are said to be indicated.

BRAZIL—Brazilian iron ore had its production peak in 1948 with an output of about one million tons, half of which was destined for domestic consumption and the other half for export. This production compares with 533,282 tons in 1939 and 810,504 tons in 1943.

BRITISH GUIANA—Governor Sir Charles Campbell Woolley has announced that a grant of £135,000 will be made from the central research fund to complete a geological map and investigate the colony's mineral resources. Last year, the colony exported \$9.5 million worth of bauxite, \$500 thousand worth of gold, and diamonds worth \$300 thousand. The Geological Survey Department also reported the discovery of several other minerals.

BRAZIL—A Brazilian Government committee of investigation recently blamed Communist sabotage for the marked decline in gold production from the *Morro Velho* mines in the State of *Minas Geraes*. The committee, appointed to inquire into a two-thirds decrease in production, said it would recommend dismissal of all Communists among the 11,000 workers, although such dismissals might cause considerable trouble.

BRAZIL—With *Volta Redonda*, Brazil's national steel mill, reaching capacity production in February, just 32 months after the first steel flowed from the plant, plans are being studied for a three-fold expansion of installations and for the establishment of additional lines of production required by Brazil for industrial expansion. At the present capacity level the plant is turning out 250,000 metric tons of steel annually. Together with Brazil's 24 other steel mills, production is more than 40,000 tons monthly; however, as the industrial needs for steel are continuing to increase at a rapid pace, Brazil will continue to depend on foreign steel to a large

degree even after *Volta Redonda's* capacity is tripled. General *Silvio Raulino de Oliverira*, *Volta Redonda's* president, has been in the United States working out plans for increasing the present capacity, with the ultimate objective of enlargement until Brazil can meet her steel needs from her own output.



AFRICA

LONDON—Gold shares are booming on the London Stock Exchange for the first time in many years, influenced by the good borehole results of The *Kromdraai* and the *Free State* Development and South African Finance Minister *Havenga's* budget speech in which he said that he believed moves were afoot to increase the price of gold. Whatever truth there may be in this, the whole mood of the London market in gold shares has changed, and the belief is growing that the 12-year bear market is over. Particular favorites are the mines in the *Free State* and the *Far West Rand* which are not due to come into production for several years yet. The market was also cheered by *Havenga's* attempt to cut costs by removing the tax on imported machinery and raw materials for the mines.

SOUTH AFRICA—Finance Minister N. C. *Havenga* has announced a second scheme for assisting the gold mining industry by selling gold above the \$35 standard. This time, the gold is to be sold for processing within the Union at a premium of 17/6, approximately 10 percent, and the manufactured articles are then to be exported under strict controls aimed at preventing any illicit dealings. A new government-sponsored company to handle the processing has been registered and, incidentally, has evoked considerable criticism from the established manufacturing jewelers, who say they have been attempting to exploit the foreign market in manufactured gold for years, but have never succeeded in obtaining government permission. The International Monetary Fund, meanwhile, has tacitly admitted that it cannot prevent premium gold sales if the metal is to be used for industrial, professional or artistic purposes, and so the scheme is being pushed ahead.

IRELAND—Still desperately short of labor, the South African Rand mining groups are tapping the traditional supply of labor for the world, Ireland, and at latest reports a cam-

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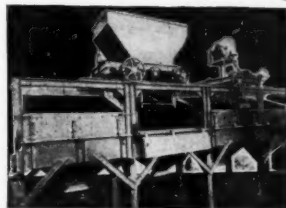
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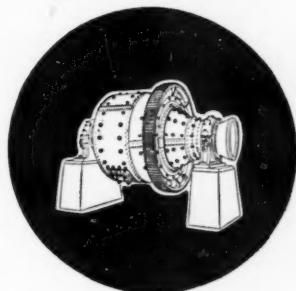
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paign was under way to recruit Irishmen to work in the mines. More than 400 already have applied, it is reported, and their physical fitness is said to be of a high order. A group of officials from the South African Mines training school are in Dublin guaranteeing all trainees a job with passage paid to South Africa and accommodations provided near their jobs. A similar campaign had little success in England a few months ago.

SOUTH AFRICA — A modern reduction plant, capable of enlargement, has been completed and milling operations begun by *Hex River Gold Mining Areas, Ltd.*, a relatively small company pioneering in the Greylingstad area southeast of Johannesburg. During the past two years, 4,316' of development has been completed on this property, showing high grade ore. The area west of the main shaft, which has now been blocked off for stoping, has shown an average grade of eight dwt. per ton. In addition, the reef being developed from the adit level has averaged 7.3 dwt. per ton.

TANGANYIKA — Ken Menzies, a former operator on the Lupa Goldfields, is reported to have located a group of gold claims near Igawa-Msukule and about 100 miles northwest of Mbeya near the Great North Road. Some high-grade reef has been opened, and a small milling plant is said to be planned.

LIBERIA — The Republic Steel Company of Cleveland, Ohio, has announced the purchase of an interest in the Liberia Mining Company, Ltd., owner of an extensive high-grade iron ore concession, 45 miles northwest of the seaport capital of Monrovia. Besides being of high quality, the iron ore will be available in lumps particularly suitable as an open hearth charge and feed, Republic said. Railroad terminals equipped to handle about one million tons of ore annually will be completed in October, although the railroad now under construction to Monrovia will require another two years of work. The surplus ore beyond Republic's requirements will be marketed by the Liberian firm.

WEST AFRICA — Ashanti Goldfields has reported an exceptionally good ore showing on the No. 28 level. At this horizon, crosscut 21SW disclosed a reef width of 11', with an average assay of 61.5 dwts.

PARIS — The Soc. *Miniere et Metallurgique de Penarroya*, which has extensive holdings in France and Africa, is increasing its capital from 645,500,000 to 1,291,000,000 francs. In France, the company has an interest in the lead and zinc mines of *Pierre-fitte*, the *Orb*, the *Malines* and the *Plagne*. It also owns the huge smelters of Noyelles Godaul and Estaque.

In Tunisia, Penarroya participates in the exploitation of the lead mines of *Djebel Ressas*, *Sakiet Sidi Youssef* and those of the Soc. *des Exploitations Minières de Tunisie* which it is going to take over. The ores are treated in its Megrine smelter. In Morocco, the company controls interests in the *Societes Minières de Zellidja*, *Aouli des Rehamnas* and *Gundafa* whose ores will be treated at a plant recently erected at El Heimer.

ALGERIA — The Cie. *des Mines d'Ouasta det de Mesloul*, which operates Algeria's most important lead mine, is increasing its capital to 91,000,000 francs. The galena deposits of Mesloul, which have been exploited since 1903, have produced so far a million tons of ore, representing 240,000 tons of concentrates.

TANGANYIKA — *Tanganyika Minerals Exploration Company (Pty.) Ltd.*, of Johannesburg is engaged in alluvial exploration work in the Southern Highlands Province of Tanganyika. V. S. M. Warwick is manager in charge of local operations.

SOUTH AFRICA — With the demand holding at a high level for South African chrome ores, it is hoped that this year will witness a

production rise above the record total of 334,000 tons in 1948. It is reported that in both the United States and Scandinavia, consumers are blending the South African ore, which is not of particularly high grade, with chrome ores from Turkey and Rhodesia.

SOUTHERN RHODESIA — The *Connemara* mine, owned by *Frobisher, Ltd.*, of Toronto, Ontario, is now operating profitably on a 250-ton daily basis, according to a report from Vice-President Al J. Anderson. The property's ore reserves are estimated at 712,300 tons.

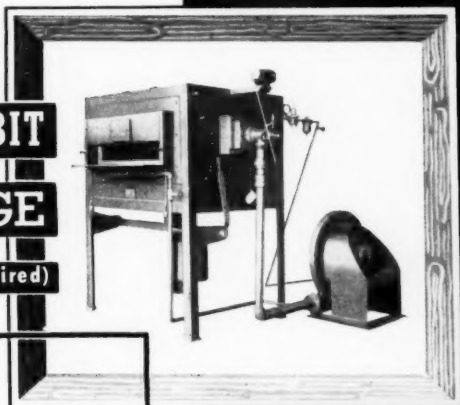
MOROCCO — Mining activities in Morocco are continuing to increase, with a number of new companies making their appearance on the scene. Included in the list of newcomers are: The Soc. *d'Etudes et d'Exploitations Minières du Sagho Central*, with a capital of 32,500,000 francs; *l'Ourika*, with a 16,000,000 franc capital; the Cie. *Miniere de Rhar-et-Tine*, with an 8,000,000 franc capital; *l'Union Miniere Panafricaine*, with a capital of 30,000,000 francs; the *Miniere du Siroua*; the *Miniere de Tidzguine*; the *Miniere des Abda Akmar*; the *Auxiliaire Marocaine d'Exploitations Minières*, and the Soc. *de Wolfram du Zguit*.



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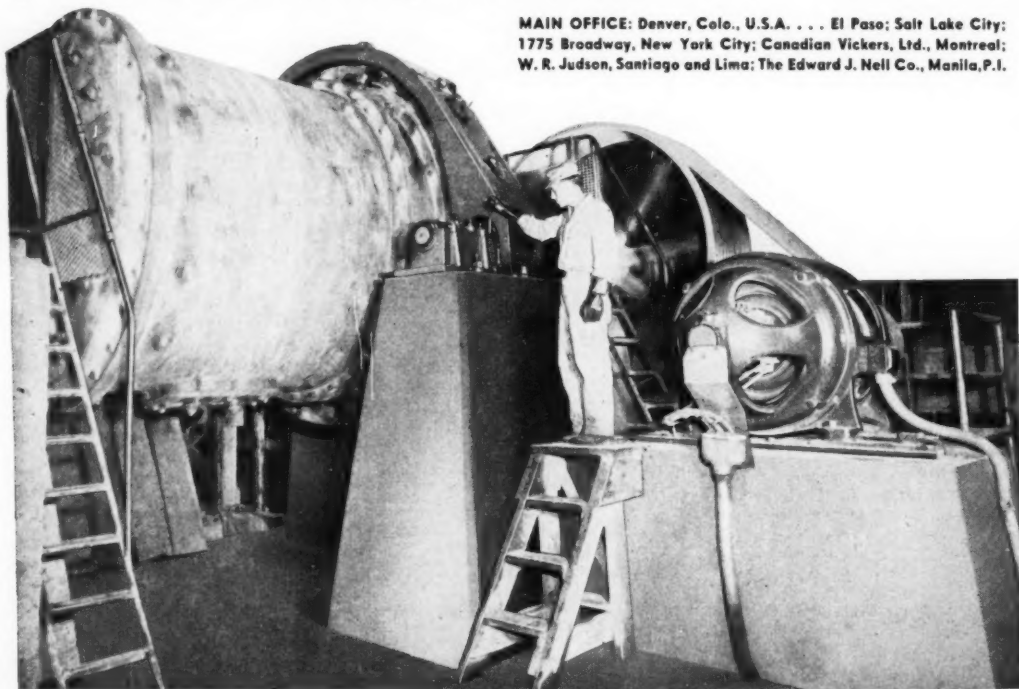
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(Continued from Page 12)

merits. This bill, known as the President's Stabilization Act for short, would establish what appears to be a totalitarian economic dictatorship in the United States. Either the editorial writers have not yet caught their breaths or the bill is so long, complex and sweeping, that its full import has not penetrated. Whether or not the bill passes, or in what form, it should be read carefully as a complete expression of the economic theories of President Truman's advisors. There is a sop thrown to small business but it looks like a red herring.

● Realistic Advice Is Lacking

While the metal market grows weaker every day, Krug recommends allocation controls to the President. Realistic economics seem to be quite foreign to the President's advisors as one can readily see by comparing the statements which come from the White House with the daily news.

● Munitions Board Will Seek Bargains

Those who expected the Munitions Board to step in and support weak metal markets forget that the board acts precisely like any buyer on a

falling market who is not forced to take material currently. He naturally will wait to get the cheapest price. The board is no different. Lower prices mean the appropriations will go further. It is no doubt true the board could take the entire domestic production of copper, lead and zinc for a year or 20 per cent of it for five years without meeting maximum stockpile requirements. The board does not consider its function to be that of stabilizing markets—but to get the best bargains it can and you don't do that by bidding up the market.

● Congress Will Wait and See

As long as James Boyd is director of the U. S. Bureau of Mines, Senators and Congressmen will be needed by John L. Lewis to make it as miserable as possible for the Bureau. One can expect sniping at its appropriations and attempts to cut down its authority. Rumors of a thorough congressional investigation of the Bureau are rife in Washington, but it is not likely any action will be taken until it is seen what Boyd will do to improve efficiency and morale during 1949.

● Resources Board Has Lost Standing

The National Security Resources

Board has become little but a title. The Budget Bureau is sniping at it and top executives do not stay. The appointment of Mon Walgren as chairman, to replace Arthur Hill, was expected to inject new life into this supposedly top policy board in which the President seems to have lost interest. Walgren could have taken his troubles to the White House on a personal basis.

Committee Sees Little Progress

The joint Senate-House "watchdog committee" on ECA, under the chairmanship of Senator Pat McCarran of Nevada, states in a report made public in March that "the ECA program has produced no appreciable addition to the U. S. stockpile." The joint committee goes on to say that more attention should be given to the domestic field and that incentives are needed. Former Representative Charles Russell of Nevada is staff expert on minerals for the joint committee.

● Reorganization Should Follow

Since James Boyd has been confirmed by the Senate as Director of the U. S. Bureau of Mines we should expect shortly to see the long-overdue reorganization begin to perk. Though the new broom is slightly

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shopworn its sweeping efficiency should not be too greatly diminished.

● A New Source of Competition

Showing the poor coordination between the right hand and left hand in government, it recently has been revealed that the Supreme Command of the Allied Powers in Japan is making higher offers for Indian manganese than is the Bureau of Federal Supply, thus competing with our stockpiling program. This is said to be the major reason why supplies of Indian manganese to the United States are decreasing, although poor transportation facilities in India have a lot to do with it.

The Munitions Board, however, was quick to deny that the manganese policy of SCAP was competing with American needs. Why? Because Indian exports of manganese to SCAP, the U. S. and other countries are fixed by a quota system, so that shipments to Japan do not come out of the U. S. quota!

● Reports on Manganese Research

In spite of the reluctance of other agencies of the government to stimulate the production of manganese

in the United States, the Bureau of Mines goes right ahead with its metallurgical work on the subject. Methods of making commercial grades from ores from northeastern Utah are described in Report of Investigations 4389.

Secretary of the Interior Ickes, testifying before the Senate Small Business Committee's mining and minerals industry subcommittee on April 1, 1943, stated:

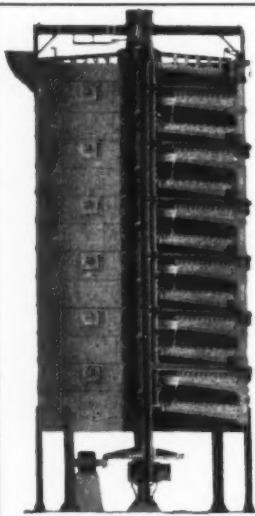
"The Congress was farsighted when it passed the Strategic Materials Act of 1939—a year and one-half before Pearl Harbor—that enabled the Bureau of Mines and the Geological Survey to embark on the largest exploration program in recent history. Under the same act the Bureau of Mines was authorized to intensify and extend its investigative work and laboratory and pilot-plant research to test and find new ways of treating our minerals."

Ickes also stated, "Thus, for example, the department has already proposed a broad, over-all plan of obtaining from many individual properties and treatment plants a flow of manganese sufficient to meet the needs for an annual production

of 87,000,000 tons of steel, and thus relieve the United States, in the event of a long war, from dependency upon imports of this strategic metal."

What happened to these plans? The Congress also thought it was being farsighted when it passed the Stockpile Act of 1946 and stated in the first section its intent "to encourage the conservation and development of sources of these materials within the United States, and thereby decrease and prevent wherever possible a dangerous and costly dependence of the United States upon foreign nations for supplies of these materials in times of national emergency."

When Ickes spoke six years ago, even though it was on April Fool's day, it is to be doubted he was fooling the Congress about the possibility of self-sufficiency in manganese. Today, we probably do not have as much domestic production as we had then, though we have more know-how. It is time some congressional committee squarely placed the blame for this insane inaction and insisted on real results from those upon whom rests the responsibility for much of our "dangerous and costly dependence."



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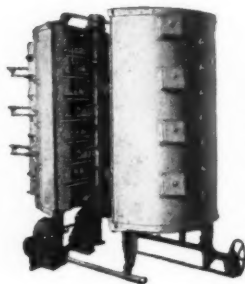


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Atomic Reactor Station To Be Built at Pocatello

The Atomic Energy Commission has announced its selection of a 400,000-acre area in the Snake River plains of Idaho, 55 miles northwest of Pocatello, as a site for a new national testing station for atomic reactors to produce useful propulsion power and energy.

To involve an expenditure of at least \$500 million over a period of five or six years, the new installation will require 6,000 workers during the peak construction period. The station will compare in area with the Hanford plutonium production center on the Columbia River in Washington, the commission said.

The 625 sq. mi. tract which will be required by the station will apparently include 25 percent of Bingham County west of Blackfoot and a big strip of eastern Butte County.

According to Dr. Henry Eyring, dean of the graduate school at the University of Utah, lack of water cost Utah the atomic energy plant.

New Electric Power Line For Idaho Cobalt Mine

At the cobalt mine of the Calera Mining Company, Howe Sound subsidiary, near Forney, Idaho, large-scale production has moved a step closer with the announcement that a new \$650 thousand 90-mile electric power line will be constructed to the mine this summer. The line, construction of which will employ about 100 men, will be run from Armstead, Montana, to Salmon, Idaho, and from there to the mine.

Calera has been doing intensive development work for more than a year, and large production is said to be assured when milling facilities are provided. The cobalt deposit, said to be the first of importance found in the United States, was located by a Bureau of Mines diamond drilling campaign.



IDAHO

Edmund G. Wilson, president of Idaho Consolidated Mines, Inc., has announced that spring operations are starting at both the Pearl mine in Gem County north of Boise, Idaho, and at the Twin Peak near Salmon in Lemhi County. At the Pearl, most of the machinery and materials have been delivered for a 100-ton mill,

construction of which will begin shortly. The mine is said to have an estimated 97,500 ton ore reserve, with values in gold, silver, lead and zinc. The Twin Peak property is already equipped with a 30-ton mill.

The Bismarck Mining Company, which controls a group of claims adjoining Sunshine Consolidated on the west fork of Big Creek near Kellogg, Idaho, will begin work to extend its main tunnel some 300' to intersect the downward extension of a promising vein outcrop, according to a recent announcement. The tunnel is now in more than 1,450' and will give more than 1,000' in depth. Active development work was started at the property last fall. Charles A. Power, Spokane contractor, is company president, and Robert M. Gammell, also of Spokane, is vice-president and general manager.

A crosscut on the 1,800' level is being pushed on a two-shift basis by the Silver Dollar Mining Company in its Purim group of claims near Wallace, Idaho. The Hayden Hill Consolidated Mining Company, which is interested in the property, has urged exploration of this virgin ground, lying between the Sunshine and Silver Summit orebodies.

Golconda Lead Mines of Wallace, Idaho, reports that it has located by diamond drilling the eastern extension of its ore shoot in Square Deal ground. The orebody was persistent in Golconda ground for more than 500' until it was broken up by faulting. Drifting to the northeast is now under way to intersect the vein after which it will be followed through Square Deal ground. Production activities will be resumed in the near future.

The Silver Syndicate Mining Company, operating in the Coeur d'Alene district of Idaho, recently made an important strike of high grade silver-lead ore on the 3,100' level east of Sunshine's Jewel shaft, thus opening possibilities for development from still higher levels and easterly along the strike of the Silver Syndicate fault for more than 3,000'. Where first encountered, the vein showed only a small streak of ore, but in following it eastward for 25' it widened to four or five ft. The company already has developed an ore shoot on the 3,700' level, where stoping is now in progress. Production is said to be exceeding 2,000 tons monthly.

Drifting on a promising mineralized zone intersected recently has been started by the Inspiration Lead Company at its property northeast of

Osborn, Idaho. Meanwhile, cross-cutting is being pushed ahead about 400' to its main objective, a quartzite formation which has proved productive in the adjoining Dayrock mine. E. H. Carlson is president.

Erection of a small milling plant is planned by Fred Brough of Salmon, Idaho, at the Pope-Shenon copper mine, the deepest mining development in Lemhi County. Brough shipped 10 carloads of ore from the property last summer which is said to have averaged 10 percent copper.

The Silver Summit Mining Company of Wallace, Idaho, is now cutting a station on the 3,200' level, preparatory to crosscutting to the rich ore shoot opened on the 3,000' level. A new top station at the collar of the main shaft is also being cut, preparatory to the installation of a new air compressor and hoist to give greater facility in mining and prospecting operations. The company has stockpiled about 2,000 tons of rich silver-copper ore at the Hecla mill.

Sinking of a two-compartment vertical shaft has been started by Silver Bowl, Inc., at the old Senator Stewart mine near Kellogg, Idaho. When the shaft has reached a depth of 140', a short crosscut will be driven south to cross the vein at a 100' depth below the Fir tunnel level. A west drift will then be driven the length of the ore shoot, which is said to be more than 250' long. With the opening of this lower level, production is expected to get under way, after which the shaft will be sunk an additional 100' to provide two levels below the main operating level.

At Mullan, Idaho, the Lucky Friday Silver-Lead Mining Company is cutting a station on the 1,600' level in preparation for later crosscut operations. Stations are to be cut on each new level at intervals of 200' so that when the shaft reaches its 2,000' objective, crosscuts can be advanced to the vein from various levels without interfering with operation of the shaft. The company's stockpile now aggregates some 1,000 tons after shipping more than \$100 thousand worth of ore.

Mine operators in Idaho's Pine Creek district were recently notified of a \$5-a-ton reduction in ore treatment charges by the Sullivan Mining Company, operator of the electrolytic zinc plant at Silver King. Treatment of more of the district's ores will also be possible, Sullivan officials said, by recent enlargement of the plant.

A surface outcrop at the Sisters mining property is being investigated with a bulldozer by the Sierra Silver - Lead Mining Company in Canyon Creek, north of Wallace, Idaho. Conditions of old adits are also being examined, and other exploratory work is under way, with a view toward resuming mining operations.

At latest reports, the *New Hilarity Mining Company's* tunnel at the head of Elk Creek east of Kellogg, Idaho, had passed the 3,000' mark, leaving some 300' before the proposed shaft station site is reached. This site, which should be reached in June, will be a short distance south of the old Wolverine shaft bottom, and a connection may be made for ventilation, according to R. W. Neyman, president. The tunnel has been paralleling the Wolverine vein system, and several nice stringers of lead-silver ore have been cut. Work is being financed jointly by *United Mines, Inc.*; *Mohawk Silver-Lead*, and *New Hilarity*.

Good progress is reported by the *Coeur d'Alenes Mines Corporation*, Kellogg, Idaho, in its southwesterly drift from the 2,800' level to explore the Commodore Truxon vein system. With the drift now in a hard, highly bleached formation, the objective is expected to be reached in the near future.

Day Mines, Inc., of Wallace, Idaho, are now milling approximately 3,500 tons monthly, with earnings near or at a new peak. Meanwhile, the firm is conducting exploratory work at its old *Hercules* mine at Burke.



OPERATIONS RESUMED AT MONTANA GOLD PROPERTY

Idle for nearly seven years, the *Ermont Mines, Inc.*, property in Beaverhead County, Montana, is being reactivated by its new owner, the *Olamont Mining Company* of Butte. W. D. Tidrich, president of *Olamont* who arrived recently in Dillon to start preliminary work, said he hopes to have the mill operating by May. A crew of 25 will be employed in the initial mining operations. An open-pit operation, the mine is reported to have produced \$1.5 million in gold and silver, running \$10 to \$14 a ton, during its seven years of operation by *Ermont*. Commercial grade ore is said to exist to a depth of 500', with values approximately the same as that which will be worked by open pit methods. Exploration of these deeper levels is planned at a later date.

MONTANA

H. C. Packer and Roy Pierson, both of Hamilton, Montana, are engaged in developing a large deposit of ilmenite in the Lochsa River region of northern Idaho. The ilmenite occurs in placer form in a series of large meadows, formed by glacial action on surrounding rocks. According to Packer, investigations have indicated some four or five million tons of ilmenite, running nearly 50 percent titanium oxide.

It is reported that the *U. S. Grant Mining Company* will construct a mill at its *Easton-Pacific* property near Virginia City, Montana, to be in operation before fall. Lawrence McLean, former operator of the *Germania tungsten* mine near Fruitland, Washington, will handle financing for this project as well as directing further development work at the property. Walter H. Myers, president and general manager, recently announced that the company has increased its capitalization from \$200 to \$500 thousand and its board of directors from three to seven.

The *Mineral King Mining Company*, operating in the *East Coeur d'Alenes* near Salt Lake in Mineral County, Montana, is continuing work on its *Wabash* drift which has now been driven some 240', the last 40' being in low grade silver-lead ore. Charles F. Buls, Missoula, is secretary-treasurer.

OREGON

Dewey Van Curler, owner of the old *Ashland* gold mine at Ashland, Jackson County, Oregon, has announced that operation of the 50-ton ball mill will be started shortly on the property's substantial ore reserves. In addition to the *Ashland*, Van Curler owns an adjoining 200 acres and a five-stamp unit.

WASHINGTON

Accelerated production and development activities highlight the *Admiral Consolidated Mining Company's* 1949 plans for its silver-lead-zinc property north of Leadpoint, Washington. An estimated 4,000 tons of zinc ore blocked out and on the mine dump will be put through the company's 75-ton mill, and additional zinc tonnage will be developed. In addition, the main tunnel will be extended about 200' to intersect the anticipated downward extension of a lead orebody exposed at the surface. Plans also call for sinking on an 18" lead vein showing in the bottom of a crosscut of the main tunnel and opening by bulldozer a promising surface showing of silver. O. L. Hood of Spokane is president.

Operations are being resumed by the *Consolidated Speculator Corporation* at its *Lucille* lead-zinc mine near Leadpoint, Washington. Stephen W. Zoldok, a former engineer with the U. S. Bureau of Mines and principal stockholder in the concern, has estimated reserves at 11,000 tons of lead-zinc ore. Exposed in a vein said to be eight to 25' wide, the ore has been developed to a depth of 65', and spring plans include driving a tunnel to gain another 100' of depth. Some 300 tons were shipped from the mine last summer to the *Young America* mill at Bossburg, and both lead and zinc concentrates sent to the *Trail, B. C.*, smelter.

Gregor Mines, Inc., a Seattle corporation, has announced that it is starting exploration operations this spring at both the *Monolith* mine, Shoup, Idaho, and at the *Young America*, Bossburg, Washington. The latter property is the subject of a recent U. S. Bureau of Mines report which revealed a gently dipping zone of altered and mineralized limestone 30' to 150' thick, with minerals concentrated near the walls. The mine, which is now equipped with a 30-ton capacity mill, has a past record of 35,000 ozs. silver, 306,000 lbs. lead and 338,000 lbs. zinc, produced from 1885 to 1947.

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Extensive Operation Gets Under Way at Aurora, Mo.

The largest operation seen for many years in the Aurora, Missouri, field is forecast by the Good-E-Nuff Mining Company which recently announced a rich zinc discovery.

Principals in the newly organized firm are George W. Moore and Leonard Goings, both of Joplin, who have purchased the former Wentworth Mining Company 250-ton mill at Wentworth which is now being erected on their property.

Ore is already being drawn from the first 73' shaft which is said to show rich ore at two levels. The shaft was sunk on the southeast edge of Aurora, just south of the former American Lead and Zinc Company operations.

The first run of ore was found at the 60' level, Moore said, and continued down to about 90', providing a face of around 25'. The second level came in at 200', the cores showing an average of eight percent zinc for an additional 50' in depth. Moore said, further, that he is preparing for extensive operations, with perhaps four to six shafts to be sunk.

Fewer Hoisting Shafts Aim of Michigan Firms

Two Michigan iron mining companies—Pickands, Mather & Company

and the M. A. Hanna Company—are now making arrangements to consolidate their individual operations, indicating a trend to reduce the number of hoisting shafts by longer underground hauls.

In the Buck-Berkshire area of the Menominee Range, the Pickands-Mather firm will provide for one main hoisting center at the Berkshire mine. Haulage drifts with modern transportation equipment will radiate from this point to bring underground ore to the hoisting shaft.

A similar project is under way in the Tully-Bengal area at Stambaugh, where the Hanna company has acquired most of the mineral land of the adjoining properties.

The Pickands-Mather properties are concentrated in the south end of the district, while Hanna occupies a strong position at the north end.



The Kittoe zinc mine near Benton, Wisconsin, has been shut down temporarily by the Kittoe Mining and Milling Company due to a fire which caused nearly \$100 thousand in dam-

ages late in February. The fire broke out in the engine room, raced through the mill and frame building which housed the derrick hoist and trapped 14 miners 172' underground. All the men were rescued by "bucket" after four hours of diligent fire fighting at the surface; however, the buildings and machinery were destroyed, and the mill was badly damaged. The Kittoe mine, which is one of the oldest in the Wisconsin lead-zinc area, employed 35 miners.

It is reported that the Anaconda Mining Company has been carrying on exploratory drilling in Crawford County, Kansas, north of the formerly productive Tri-State areas.

According to a recent report, Calumet & Hecla Consolidated Copper Company, Calumet, Michigan, is now employing 2,422 workers in its copper mining and other departments in northern Michigan. Most of this increase has been in underground mining operations which have shown a steady production rise in the past seven years to over 100 million lbs. last year.

Production of zinc and lead, at a ratio of about four to one, respectively, has been started by the Flossy M Mining Company, following completion of shaft sinking operations in the Cardin area of northeastern Oklahoma. Ore from the new operation, which is north of the old Evans Wallower No. 9 in the north end of the Cardin stretch, is being hauled by truck to the Nellie B Mining Company's Barbara J Mill, formerly the Evans Wallower No. 4. Charles M. Harvey Jr., and Charles L. Grayson are principals in the Flossy M company.

Kansas Exploration, Ltd., is currently sinking a shaft at the north end of the Ritz lease in the Picher area of Oklahoma, where officials are said to be optimistic over lead-zinc possibilities. Ross Blake of Joplin, Missouri, company president, said the project and arrangements for contract milling will be completed in the near future.

The Carpenter Mining Company of Picher, Oklahoma, which recently completed installation of a new hopper and derrick on the abandoned New York property, is now shipping ore from underground operations to the Central mill of the Eagle-Picher company near Miami. Mrs. Fred Carpenter of Picher is company president, and Leslie L. Marcus is superintendent in charge of operations.



Delmer L. Curtis—Aerial Photo Service, Tulsa, Okla.

17,000 TON EAGLE-PICHER MILL

Accommodating some 20 company mines, plus an equal number of independent Tri-State shippers, is the 17,000-ton Central mill of the Eagle-Picher Mining and Smelting Company near Miami, Oklahoma. Zinc and lead concentrates produced by the mill are processed further in company-owned smelters and fabricating plants.



Shaft deepening operations are being pushed by the *Oliver Iron Mining Company* at its *Pioneer* iron mine on the *Vermilion Range* at *Ely, Minnesota*. The work now in progress will drive the "A" shaft an additional 50' and the "B" 113' to reach the 16th level. The "A" shaft, which is used for handling men, supplies and rock, has now attained a depth of 1,473' and will be bottomed below the 16th level. The "B" shaft, which handles *Pioneer's* ore, has reached a depth of about 1,534' and is bottomed some 44' below the 15th level. Completion of sinking will make the 16th level available for mining, augmenting present production from the 14th and 15th levels.

Stripping activities are being continued by the *Cleveland-Cliffs Iron Company* at its *Hill, Holman, Hawkins, Atkins and Wanless-Woodbridge* iron mines on *Minnesota's Mesabi Range*. The latest mine to be placed on the active list is the *Wanless-Woodbridge* which is now well advanced in development for pit mining and is scheduled to ship this season. At the company's *Holman* mine, *Taconite, Minnesota*, the *hidenity* unit added to the washing

plant will be placed in operation at the opening of the shipping season.

Operations are once again under way at the *Lake* iron mine, *Biwabik, Minnesota*, following a two-month shutdown which affected about 450 men in the *Biwabik-Aurora* area. Stripping at the mine is being carried out by *Groves Contracting Company* of *Minneapolis*.

The *Pacific Isle Mining Company* of *Hibbing*, which last year operated 10 properties and shipped a total of 174,104 gross tons of iron ore, is now stripping at the *York* mine at *Nashwauk, Minnesota*, on the *Mesabi Range*.

Rhude and Fryberger, Kinney, Minnesota, are continuing preparations for a busy season. Stripping operations have been carried out at the *Seville, Wade and Troy* mines on the *Mesabi Range*, and a jig plant has been installed at the *Pennington* mine on the *Cuyuna Range*.

Stripping and structure exploration has been in progress on a two-shift daily five-day week schedule at the *Longyear* mine of the *Inter-State Iron Company, Virginia, Minnesota*.

First *Menominee Range* iron ore of the 1949 navigation season was loaded on March 23 at the *Escanaba* docks when the *P. D. Block* of the *Inland Steel Company* took a cargo from *Inland's Sherwood* mine and the *M. A. Hanna Company's Wau-*

seca mine. The *Wauseca* ore came direct from shaft pocket, while some of the *Sherwood's* was from stockpile.

The *Inland Steel Company's Sherwood* mine at *Mineral Hills, Michigan*, is employing a unique method of stockpiling its ore mined during the winter months. Instead of the conventional electric motor and stockpile cars, the *Sherwood* handles the ore by *Koehring Dumptor* trucks. Other mines have utilized these flexible units during the shipping season for hauling rock to rock dumps from screens, but, as far as is known, *Inland* is the first to apply them to winter stockpiling at underground shafts.

At *Jones & Laughlin Ore Company's Vicar* mine, *Wakefield, Michigan*, a 24" pan conveyor has been installed in the headframe to handle rock produced in the underground development work. A new *Koehring 1½ cu. yd. Dumptor* disposes of the rock on the surface. The new dry and first-aid rooms at the mine are near completion.

The first iron ore to be hoisted at the *Champion* mine, *Beacon, Michigan*, since 1910 was brought up on March 8 by the *North Range Mining Company*. The ore, which is a high-grade hard hematite, is placed in ore cars as hoisted for shipment to the *U. S. Steel Company's Chicago* furnaces.

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Completion of 6,500' Colorado Tunnel Urged

Completion of the war-born 6,500' Leadville drainage tunnel at Leadville, Colorado, has been urged by James Boyd, director of the U. S. Bureau of Mines, as the one big possibility of getting quick reserves of lead, zinc and manganese.

In his testimony before the House Appropriations Committee in Washington, D. C., Boyd said that the expenditure of \$1.7 million and approximately three years for completion of this project would make possible the mining of three million tons of ore, containing one billion pounds of combined lead and zinc metal. Costs would run less than two-tenths of a cent per pound of metal.

After the first year, when the tunnel had reached the Hayden shaft, drainage could begin to allow tapping of orebodies near the surface and pumping of the deeper deposits, the cost of which now is nearly prohibitive.

According to Boyd, the tunnel would be paid off by mining interests on a royalty basis, with only those mines benefited by the project contributing to the cost. Some \$1.4 million was spent in driving the tunnel which has served no purpose since its abandonment by the Bureau.

Construction of Carlton Mill Ahead of Schedule

A. H. Bebee, general manager of the Golden Cycle Corporation, Cripple Creek, Colorado, announced recently that preliminary work on the new Carlton mill at Elkton is ahead of schedule, having got an early start in February with favorable weather conditions.

The first concrete for the new structure has already been poured, and a 20-ton semi-trailer truck is making regular trips from Colorado Springs with steel, lumber and cement to keep up with the accelerating operations.

Bebee also announced that the new milling process which will be used in the plant has been worked out and final drawings made. The process was worked out in the laboratory of the Golden Cycle mill at Colorado Springs under the direction of Bebee and Max Bowen, mill superintendent.

Custom Mill For Uranium Ore Contemplated at Moab

Erection of a custom mill at Moab,

Utah, to treat uranium ores, particularly those of high lime content, is being investigated by Dr. Layne Perry of Tulsa, Oklahoma, who conferred recently with local mine owners.

Associated with Dr. Perry is R. E. Illidge, prominent metallurgist of Joplin, Missouri, who has worked out a process said to be extremely efficient and economical in concentrating uranium from ores having a high lime content.



June completion of a new 250-ton custom mill on the old Wanakah mill site at Ouray, Colorado, is expected by the Silver Shield Mining and Milling Company. Designed by P. W. Page, engineer-in-charge at Ouray, the mill will produce a copper-lead and a zinc concentrate, with a 150-ton concentrate bin storage. Construction began a year ago and has included the mill building, ore bins with 900-ton capacity, a modern assay office and a transformer house. Aside from the handling of custom ore, the company will develop and operate its large group of Wanakah claims, famous early-day gold producers.

A 2,300' aerial tramway and mine plant are being installed by the Slate River Mining Company at its old Eureka mine on Treasury Mountain in the Crystal River mining district of Gunnison County, Colorado. Completion of this work is expected in August, with production scheduled

The Eureka mine, situated at an elevation of 13,000' on Treasury Mountain, will soon be connected with the above pictured road upon completion of a 2,300' aerial tramway.



for that time. Initial output will be from the heavy sphalerite orebodies, although some production will come from high-grade lenses, it was said. R. E. Simpson of Alamosa is general manager, and Robert E. Simpson of Monte Vista is mine superintendent.

The John Jay Mining Company, operating the John Jay and Last Chance mines at Jamestown, Colorado, is now extending a drift on the 225' level into a new orebody, it was reported recently. Since the company took over these properties last August, they have made six shipments of high-grade gold-silver ore from the 225' level and now propose to start operations on the 325'.

Having leased nearly all the dormant mining properties in the Aspen, Colorado, area, the newly formed Aspen Mining Company will conduct an extensive exploration program this summer with a view toward the possible revival of zinc and lead mining on a commercial scale. Created for this purpose by the Anaconda Copper Mining Company, the Humphreys Gold Corporation of Denver and J. W. Patterson, a Salt Lake City metallurgist, the company is already at work in the old Smuggler mine north of Aspen. According to Judson S. Hubbard, vice-president and treasurer of Humphreys, expenditures might amount to as much as \$100 thousand, although exploration may be discontinued if adverse geological conditions are encountered. At present, 12 men are employed under the direction of F. W. Anderson of Anaconda.

Gold Mines Consolidated, Inc., of Georgetown, Colorado, is now directing its efforts toward preparing the Mendota mine for production, along with its Terrible and Dunderberg properties in the Silver Plume district. The latter properties are said to be producing about \$15 thousand monthly at the present time. At the Mendota, work is being concentrated on the Victoria tunnel, where 600' of new rail has been laid and a 440' compressor hoist installed. When the tunnel has been placed in good operating condition, the crew will repair the North Frosberg winze which is said to have produced ore valued at \$990 thousand in 1945.

Following completion of a \$250 thousand rehabilitation program, the Vanadium Corporation of America's plant for processing vanadium and uranium ores has been placed in operation at Durango, Colorado. With approximately 225 employees

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in the operation, Troy Newland will be in charge of the plant. George Snyder will be office manager and Charles Dryer, metallurgist. Most of the ore will come from VCA mines, including the vanadium properties near Rico. Concentrates will be shipped east for refining.

Harry O. Nylene and R. L. Jones are now engaged in reopening the *Reynolds Tunnel* which is situated at an altitude of 11,000' near Summitville in Rio Grande County, Colorado. As the majority of under-ground production will be drawn through this tunnel, new rails and air lines are being installed as fast as debris is removed. During the summer months, the operators will work the veins from the surface with power shovels, picking up whatever dumps seem profitable, and a copper vein on the Reynolds level will be investigated. A 100-ton flotation mill which suffered extensive damage from heavy snows has been restored and is now ready for operation. If conditions warrant, the cyanide mill will also be rehabilitated this summer, it is understood.

Development operations are being pushed by the *Leadville Lead Corporation* at the *Hill Top* mine and surrounding crews in the Horseshoe mining district, southeast of Leadville, Colorado. It is understood that the Dauntless tunnel has been reopened and a compressor and other equipment installed preparatory to projecting the tunnel to the Lake County side of the range and connect it with the Hill Top shaft workings. A crew of 25 is currently engaged in the work under the direction of Sid Gately, mine superintendent. James M. Redman of Denver is manager, and Tom McKay assistant manager.

Clyde T. Carson, president and general manager of *Gold Empire, Inc.*, reports steady progress in the company's tunnel operation at the *Mary Nevin* mine on Rosebud Hill near Cripple Creek, Colorado. The tunnel is said to be in to a depth of more than 275' and is approaching an area below promising surface indications. According to engineers' reports, several hundred thousand tons of lower grade ore are available for milling; however, Carson said he will await completion of the nearby *Golden Cycle* mill instead of equipping the *Mary Nevin* plant.

UTAH

D. W. Viles, vice-president of the Western Division, *Vanadium Corporation of America*, reports that the 50-ton pilot plant now under construction at White Canyon, Utah, is

expected to be in operation on the district's uranium ores before July. The copper-uranium deposits will be operated jointly by independent owners and VCA, with better than average prospects of an enlarged operation in the not too distant future.

A lead-zinc-silver orebody was discovered recently by the *Park Utah Consolidated Mines Company* at its *Ontario* mine near Park City, Utah, during exploratory work on the 1,500' level. The ore is said to be somewhat similar to that on the 1,600' level, encountered during last year's operations. Paul H. Hunt, mine manager, said it is running about eight to 11 percent zinc, five to eight percent lead and five to six ozs. silver per ton. The company is now trying to determine whether there is a connection, anticlinal or otherwise, between its discoveries on the two levels.

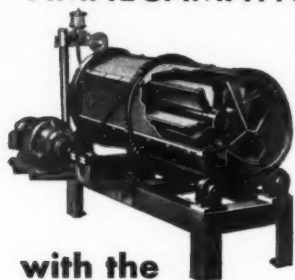
The *East Utah Mining Company* announced recently that it has abandoned its costly exploration program in the eastern area of Utah's Park City district. According to company president, Fred Searls, Jr., object of the search had been the lead-silver-zinc ore believed to exist in the *Hawkeye-McHenry* fissure. To this end, a north crosscut was driven approximately 2,500' from the *Cunningham* tunnel at an estimated cost of \$60 a foot. The company may resume development work about half a mile west of the crosscut at a later date, Searls indicated, depending on the results of present exploration work being carried out by the *General Connor Mining Company*.

WYOMING

The *Wyo-Dak Chemical Company*, which has long operated a bentonite plant at Upton, Wyoming, is now constructing another plant near Colony. To have a capacity of 350 tons daily, the new mill will be equipped with thermostatically controlled dryers, modern pulverizers and a complete dust-collecting system. Wyoming, which is the nation's leading bentonite producing state, achieved a record output in 1948, with about 35 per cent of the nation's production, or 250,000 tons, coming from the northeastern part of the state.

Machinery and other necessary equipment is being acquired by *H. S. Hardee & Sons*, preparatory to the start of mining operations at their lead-silver-zinc properties in *Sunlight Basin* near Lowell, Wyoming. Roads to the tunnels have been completed since 1946, so that work can begin immediately on the *Horn Silver* vein.

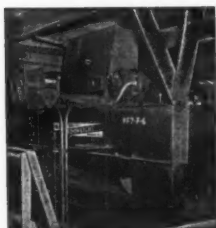
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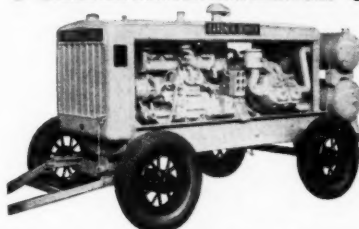
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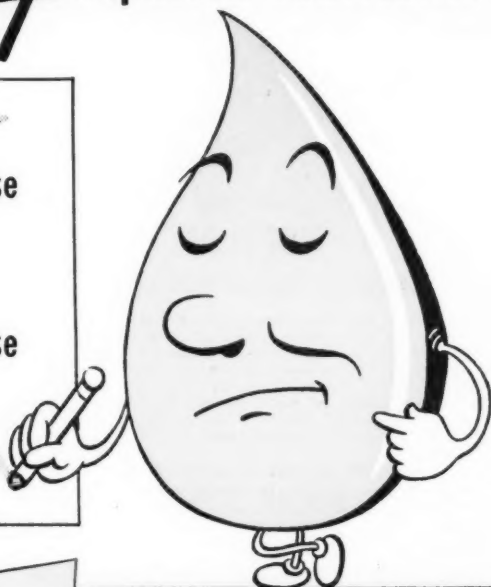
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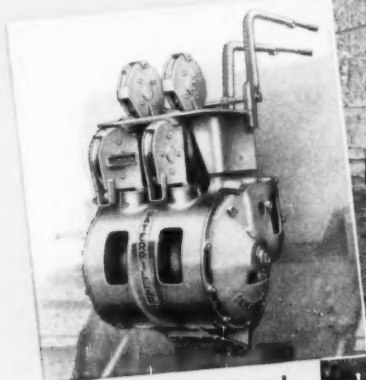
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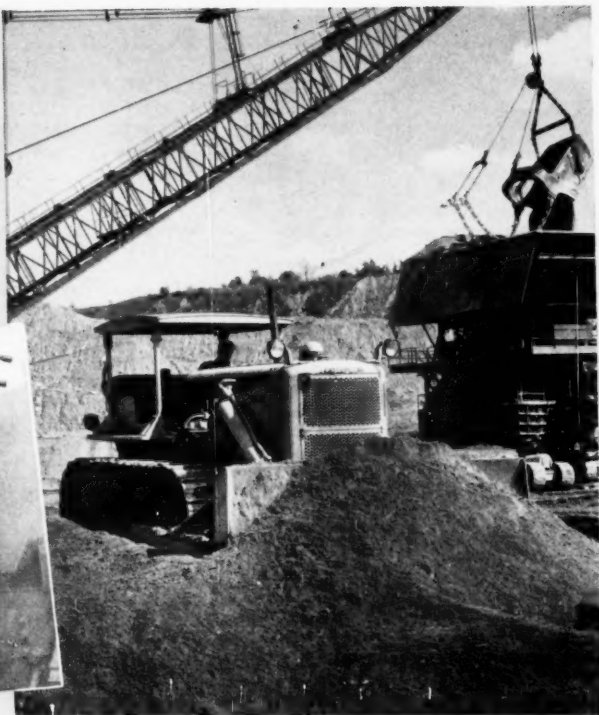
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New AS&R Lead-Zinc Mill To Be Erected at Deming

Having drafted final plans and ordered necessary materials, the Stearns-Rogers Manufacturing Company of Denver started construction of the American Smelting and Refining Company's new lead-zinc ore treatment plant at Deming, New Mexico, on May 1.

The Stearns-Rogers firm was awarded the \$600 thousand contract for the huge lead-zinc center on February 18, according to Harvey Mathews, mining manager for the company.



Pledge Metals, Inc., is making arrangements for the erection of a 100-ton lead-zinc concentrating plant, electrically equipped, at the Ajax mine in the Mineral Hill mining district of Pinal County, Arizona. A new road has been completed from the mine and camp to the highway, and the old camp is being rebuilt. A dam is also under construction in the canyon just above the millsite. At the mine, the shaft has been repaired, and drifting on the 100' level is in progress. Owned by Walter C. Smith of Coolidge, and L. H. Allen of Gilbert, the Ajax is operated under a lease agreement by Pledge Metals.

Construction of a 50-ton capacity mill is planned by *Mineral Mountain Mining and Milling Company*, a new Arizona corporation, at its recently acquired group of claims in the Mineral Mountain district. New roads have been built to the property, new buildings constructed and development work is now under way on a 48-hour week basis. The ore is said to be principally lead sulphite and cerussite, with the vein running from four to 29' in width. Principals in the new corporation are: C. M. Miller, K. M. Miller and L. Lee Boyer.

Some 1,200 to 1,500' of diamond drilling will be undertaken at the *Silver Reef* mine, southwest of Casa Grande, Arizona, in an effort to locate the downward extension of the orebody from which current production is being drawn. Regular shipments of siliceous low-grade silver ore have been going to the Hayden

smelter for some time. Owned by I. M. Clausen of Phoenix, the Silver Reef is being leased by Sherwood Owens.

The *Kennecott Copper Corporation*, Ray Mines Division, Ray, Arizona, reports good progress in stripping of the orebody which is to be mined by open-cut methods. Work is proceeding on a three-shift basis with 165 men employed, and approximately 800,000 tons of rock are being removed monthly. It is expected that some ore from the pit will be available during the second half of this year, but that in all probability it will be the latter part of 1950 before the operation can be brought up to capacity production of 9,000,000 pounds of copper monthly. A 10,000 kw. turbo generator is being added to the power plant, an extension made to the crushing plant at the mine and additional grinding units will be installed in the mill to prepare for the extra tonnage which will come from the pit. Robert W. Thomas is general manager.

John Fay, operating as the *Fay Mining Company*, has now attained a depth of 200' in the development of his claims near Yuma, Arizona. Fay's discovery of high-grade gold ore was first reported about 18 months ago, and additional work since then is said to have proved ore of even higher grade. Erection of a 25-ton flotation mill is scheduled for this year. Five men are currently employed.

The *Valley View Mining Company*, operating in the Mineral Mountain district near Florence Junction, Arizona, reports that it has shipped two carloads of lead-silver ore from its *Silver King* group of five claims. With a crew of three employed in the operations, the shaft has been retimbered and the tunnel is now in 180'. The claims are owned by E. V. Vaughn, 522 North Second, Phoenix, who has granted a lease to the *Valley View Company*. V. H. Watson and C. G. Elmer, Box 1084, Florence Junction, are directing current work.

Mining operations are being carried on by the recently organized *Border-Land Metals Company* which has acquired a 10-year lease with option to purchase the *Panama* or *Huachuca Queen* mine near Fort Huachuca, Arizona. Heading the company is A. L. Brown, Box 368, Douglas. K. C. Moon, 1119 "E" Avenue, Douglas, is general manager.

The *M & S* mine in the Tyndall district near Patagonia, Arizona, is being reopened by Charles O'Keefe of 415 Morley Street, Nogales. During rehabilitation of the old shaft below the tunnel level, approximately 50 tons of lead-silver ore have been shipped monthly.

Work has been resumed by the *Mariquitta Gold Mining Company* at the *Black Mesa* property and at its *Mariquitta* mine, four miles west of Quartzite, Arizona. Earl R. Crawford is superintendent.

The *Bonanza Mining Company*, organized at Wenden, Arizona, last fall, is now carrying on mining operations on the 300' level of its *Bonanza* mine near Cunningham Pass, north of Wenden in Yuma County. The company was recently granted permission by the Arizona Corporation Commission to sell 120,000 shares of common stock, proceeds from which will be expended for comparative large-scale development and mining operations. Roy R. MacDonald is president.

Carl McLendon, Box H-1, Wickenburg, Arizona, is now shipping gold ore from the *Homestake* mine, which he holds under lease, 20 miles southwest of Wickenburg. The mine was discovered and mined by Ed Monicar who is said to have shipped several thousand dollars worth of ore from the vein.

R. C. Wood of Miami, Arizona, recently leased the *Crenshaw* mine, a group of 38 claims, and is now reopening the old tunnel and repairing the main drift. A crew of six is employed.

Development work has been started at the *Silver Prince* mine by Ralph Pursley of Dos Cabezas, Arizona, who has leased the property from Bert Robertson. Present work consists of driving a crosscut to intersect the vein. A crew of four is employed.

A copper strike, occurring as chalcocite and chrysocolla in schist, has been reported at the *Hardly Able* claims, near Cavecreek, Arizona. The exploration work is being done by G. O. Leth, Box 18, Black Canyon Stage, Phoenix, Arizona.

The *Keystone* mill of the *Mineral Park Milling Company* at Chloride, Arizona, is treating considerable custom ore as well as that produced by Robert Payne, operator of the mill. Among the regular shippers are the *Summit* mine, operated by Ralph R. Langley, Box 1266, Kingman, and the

Austin Mining Company, headed by Lewis C. Austin, Box 5, Chloride.

Truman and Melvin Pourchot, 1007 East Mariposa, Phoenix, Arizona, report a strike of high-grade lead ore at their prospect in the Vulture mining district. The Pourchots are developing the Rick Ann group of two claims and plan to start shipping ore from surface workings in the near future.



V. B. Bennett of Sacramento and a crew of 15 are starting dredge operations on Buckeye Creek west of Stringtown in Trinity County, California. The equipment, which was moved from Indian Creek near Douglas City, consists of a Lima 602 dragline, with a 57' boom and two cu. yd. capacity bucket, and a Bodinson washing plant built on five steel pontoons which form a barge 36'x46'x42" deep. The stacker belt is 30' wide and 50' long between pulleys. The ground along the Buckeye is nine to 12' deep and consists of gravel, cobbles and boulders, lying in a soft, decomposed, granitic bedrock.

The Gold Hill Dredging Company

of San Francisco has under development a lead property in Death Valley, four miles north of Townsend Pass and nine miles northwest of the Emigrant Springs checking station in California. A mining party has been engaged by the company to explore the 12 claims, with a view toward starting mining operations as soon as possible.

It is reported that several mine operators are making preparations to resume gold mining activities in the Diamond Mountain district near Susanville, California. Lessee arrangements are said to have been made by George N. McDow on his extensive holdings in the area; a discovery of good grade ore made last summer by C. L. Musgrove on his Blue Bell claim warrants further investigation, and bulldozer work on the Gayman property, controlled by Frank Schmidig, uncovered what is said to be an important vein.

Erection of a 50-ton amalgamation and flotation plant has been started by the California Silver Corporation at Silver Lake, seven miles north of Baker, California. Ore from the company's Silver Hill mine near Riggs will be trucked 12 miles for processing at the new mill. Water for the new operation will be supplied by a well developed in early

days by the Pacific Coast Borax Company at the Silver Lake Station of the abandoned Tonopah and Tidewater Railroad. Operations are under the direction of W. R. Long, vice-president, 12707 Matteson Avenue, Venice.

It is reported that the Blue Eyes Mining Company will install a diesel generator, compressor, washing trommel and mucking machine at its Caples property east of Michigan Bluff in Placer County, California. Said to contain an extensive channel of profitable material, the property consists of 17 claims covering 1,800 acres on the headwaters of the American River at an elevation of 5,500'. A new deposit uncovered shortly before the war contains gravel four ft. thick, with the bedrock a decomposed schist formation. Some of the claims were worked in the past by hydraulic mining method.



Shaft sinking operations are getting under way on a group of claims in Lee Canyon, 22 miles from Beatty,

(Continued on Page 76)

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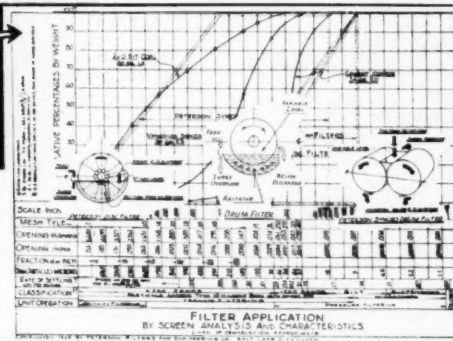
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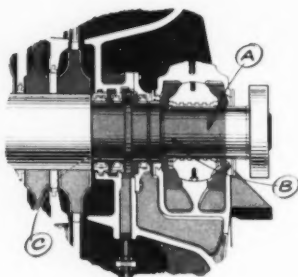
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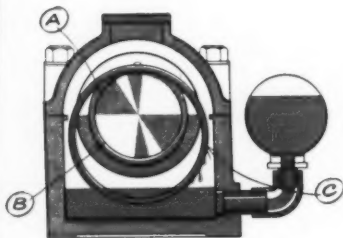


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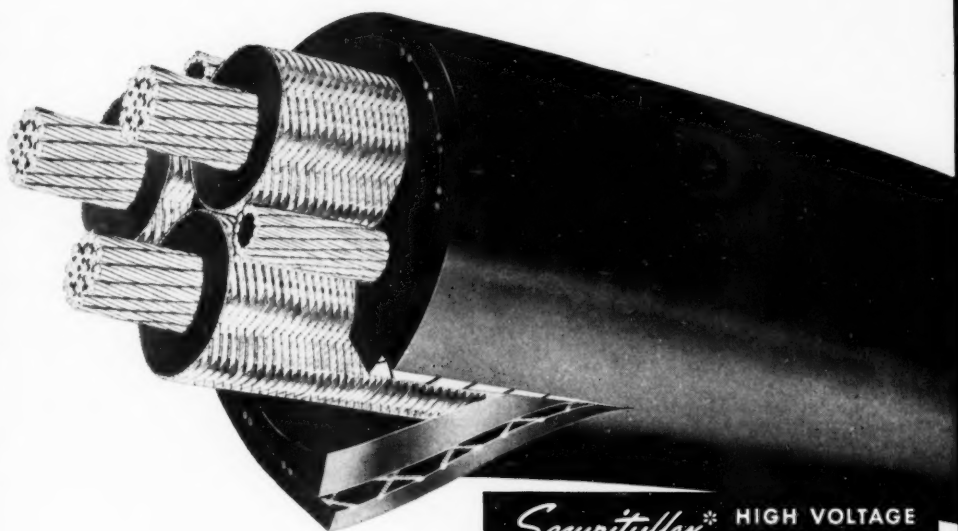
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(Continued from Page 73)

Nevada, controlled by *Galena Mines*. The shaft will be sunk to the 100' level after which two drifts will be run. H. B. and Earl E. Russell of Sacramento, principals in the company, report assays showing 26 percent lead, with eight oz. silver and \$1.05 gold per ton.

The present development program at the property of the *Bullion Mining Company* in the Goldsprings, Nevada, mining district is expected to result in mining operations in the near future. Under lease to H. A. Giffen of Henderson, the property has been developed by a 365' tunnel, and a 100' raise is now nearing completion. Company headquarters are in the Atlas Building, Salt Lake City.

F. E. Schundler & Company, Inc. of Joliet, Illinois, has taken an option on an extensive perlite deposit, discovered in Pershing County, Nevada, by Marion Schendel and Henry Schwabrow. According to President Schundler, successful popping of the perlite has been carried on in an experimental furnace, and a commercial furnace is about completed.

Reports are that the *Ubehebe* lead mine, being operated by lessees Henry Hagerman and Louis Hinds of Beatty, Nevada, is showing prospects of becoming a sizeable operation. Regular shipments have been going to the Salt Lake smelter for some time, and it is said that a mill

may be erected on the property. George Lippincott, owner of a nearby producing lead property, is reported to be contemplating erection of a smelter.

Lessees Frank Christopher and Carl House report that the *Fabbi-Wells Mary Louise* property at Lone Mountain in Esmeralda County, Nevada, has been equipped with a larger compressor and 1,000-pound bucket and that ore shipments are expected to be continued on a fairly substantial basis. Recently, the lessees shipped 120 tons of lead-silver ore to the Selby smelter in San Francisco Bay and to the AS&R smelter at Garfield, Utah. Bulk of the ore at present is being drawn during shaft sinking operations, and the vein is said to be maintaining a good width. Fabbi and Wells have also purchased the adjoining *Nevada Silver* ground, development of which is expected to begin soon.

With the arrival of 25 tons of equipment and supplies, operations are being stepped up at the property of *Galena Mines*, 22 miles south of Beatty, Nevada. According to Earl and H. B. Russell, who hold a controlling interest in the property, findings to date indicate that lead-silver orebodies of considerable scope lie only a short distance below the surface. The 6' by 9' shaft now being put down is said to be cutting ore all the way and, during recent rounds,

the vein has widened beyond the two faces of the shaft so that its exact width is not known at this time. Considerable lateral prospecting is planned when the shaft reaches a 150' depth.

Mrs. Josie Pearl, owner of the Columbia gold-silver mine, 100 miles northwest of Winnemucca in Humboldt County, Nevada, has announced that the property is being reopened by lessees Robert Rysh and associates of Fallon. Three men are employed in the present development work, and all production will be shipped to the Getchell mine for milling. The property was formerly operated on an extensive scale by Columbia Mines, Inc.

The *Silver State Development Corporation* of Goldfield, Nevada, has been taken over by the T. M. Young interests which are reported to be setting up new headquarters at Beatty. According to Ted Young, a modern camp will be installed at Beatty while prospecting trips are made by pack train to the adjacent mineral country.

Marty Hess, Colorado prospector who has been holding classes on uranium prospecting under the sponsorship of the Nevada state department of vocational education, recently announced the discovery of eight percent pitchblende in southern Nevada. Deposits of low grade carnotite have also been found at Goodsprings, Nevada, Hess said.

Canadian and U. S. Firms Now More Active in B. C.

The British Columbia and Yukon Chamber of Mines reported recently that large Canadian and American mining companies are showing more interest in British Columbia this year than ever before, with more than 25 organizations now acquiring base metal properties under option for later examination and laying plans for exploration during the summer months.

In the Lando area south of Revelstoke, as well as in other parts of the province, the St. Joseph Lead Company of New York has made its first appearance in British Columbia with plans for the investigation of silver-lead prospects.

The National Lead Company of New York has acquired interests in several properties in the East Kootenay.

The Kennecott Copper Company, which has taken over a large copper deposit in the Omineca, has been hauling in equipment to the property, so that exploration can get an early start.

The Anaconda Copper Company engineers are investigating several properties, especially copper prospects in the north.

American Smelting and Refining Company, owner of the Tacoma

smelter, has established an exploration office in Vancouver.

The New Jersey Zinc Company has taken over several mineral deposits, one of which is a low-grade silver-lead property south of Nelson.

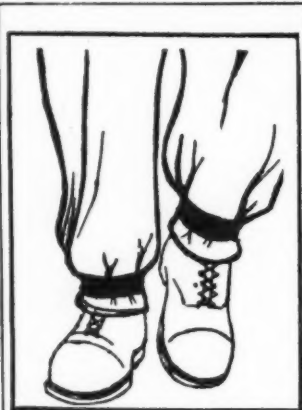
Other large organizations participating in the race for British Columbia metals are: The American Metal Company, the International Mining Company of Canada, and Noranda Mines.

Mexico to Sell 7,000,000 Ozs. Silver to Arabia

A boon to Mexican mining was seen recently in Mexico's announced deal to sell 7,000,000 ozs. of silver to Saudi Arabia for minting purposes.

This wholesale silver sale was hailed by Ing. Gustavo P. Serrano, president of the Mexican Mining Chamber, as one of the props needed to put Mexican mining on its economic feet. Serrano declared that transactions for like sales will soon be consummated with other countries.

A marked increase of silver production, possibly to the 2,500-ton annual level maintained between 1935 and 1944, may result from this new outlet for the white metal, the Chamber said. Annual production of silver fell off to about 1,800 tons in 1948.



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NEW METHODS — NEW EQUIPMENT

NEW CUMMINS HIGH SPEED DIESELS UNVEILED AT SPECIAL PREVIEW FOR INDUSTRIAL PRESS

On March 17 the Cummins Engine Co., Inc., builders of Cummins Diesel engines, assembled, by invitation, a group of editors and representatives of industrial magazines. They were there to view the first public showing of a new high-speed Diesel engine and to watch consumer units in production at the Cummins plant in Columbus, Ind. The eastern representative of MINING WORLD was present. His story follows:

"We were assembled in a spacious section of the Cummins plant at Columbus, Ind., where L. W. Beck, vice-president-sales, formally presented Cummins' newest, the Model NVHS-1200 high-speed Diesel engine.

"With this first public preview we also announce that we are in production with this new engine and are taking orders," said Mr. Beck.

One of the field tests for the new Cummins NVHS-12 was in a 40-ton experimental rear dump Euclid for the M. A. Hanna Company in the Mesabi Iron Range. Gross weight of the truck is 80 tons.

The engine has other wide applications usable in mining. It has been tested for locomotive power in a 65-ton General Electric diesel-electric job and is currently undergoing tests at the Maryland Slag Co. It will be sold in the on-highway field as well as off-highway and has wide use as a stationary unit for many types of industrial power.

It has been field-tested in a Manitowoc shovel used in coal stripping at Terre Haute, Ind.

We first viewed a stationary unit and then moved over to a model that was operating on the test block, where it was put through its paces for our pleasure. Discussions brought out that the new Model NVHS-1200 is a 12-cylinder engine, combines in V-form in a single cylinder block casting.

It is four-cycle and supercharged to deliver 550 h.p. 2100 r.p.m. A companion model, NVH-1200, is not supercharged, but is naturally aspirated and delivers 400 h.p. at 2100 r.p.m.

The 12 cylinders are set in a V at a 40-degree angle. These cylinders are staggered, the right bank slightly ahead of the left, allowing the connecting rods to be mounted side by side on the crank pins.

The engine is designed to give

greater power with reduced over-all engine dimensions, high operating speed, fuel economy, because of high compression and portability.

As J. C. Miller, Jr., manager of research, expressed it, "It is interesting to note that high compression featured today in automobile engines for its economy is about only half that accepted as regular practice with Diesel engines. The new NVHS-1200 has a compression ratio of 13.5 to 1 and its 400-h.p. companion, 15.5 to 1."

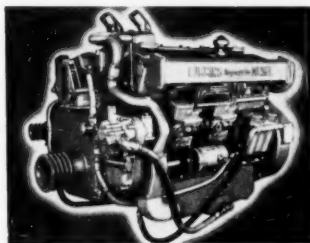
Portability is demonstrated for this supercharged engine by its total weight of approximately 4,550 pounds or equivalent to 8.3 pounds per horsepower at maximum running. The engine has a 1486 cu. in. displacement.

Truck users, and others that must allow for close-fitting engine spaces, will be interested in the dimensions: 73 inches long, 41 wide and 57 high.

The new Cummins engines are equipped with a completely new Cummins fuel pump. This is a refinement of the present Cummins fuel system. The single plunger of the new pump measures the fuel charge for all the system and, therefore, each injector receives a predetermined amount of fuel, at required engine speeds and loads. Fuel is delivered

to the injectors at low pressure. The new pump gets its name—DD—because it contains a double disc arrangement.

There are two pumps, one for each six cylinders. A low and a high-speed governor maintain idling and maximum speeds, but the intermediate ranges are manually controlled. Built in characteristics, plus an over-speed trip, limits the speed in cases of line failure.



Fuel pump side of the new Model NVHS-12 Cummins diesel showing the new Cummins DD fuel pump. This V-type engine, the most powerful high-speed diesel now in production, develops 550 hp. at 2,100 r.p.m.

The tour through the plant was thorough. In each department, including testing, engineering, development, the general foreman and the foreman, stood by to explain each operation.

While precision was the most evident point in every operation, stress was placed on the fact that these new engines can be serviced the same as current engines in the Cummins line.

(Continued on Page 79)

This 40-ton experimental rear-dump Euclid is powered with one of the new supercharged Model NVHS-12 Cummins diesels. The M. A. Hanna Company has been giving it rugged field tests on the Mesabi Iron Range in Minnesota for the last two years. Designed for 40-ton payloads, the gross weight of the Euclid truck loaded to capacity is approximately 80 tons. The supercharged twelve-cylinder Model NVHS-12 Cummins diesel has a maximum rating of 550 hp. at a maximum speed of 2,100 r.p.m. With its naturally aspirated companion, the Model NVH-12, also being announced at this time, there are 46 models in the Cummins line, ranging from 550 hp. to as low as 50 hp.



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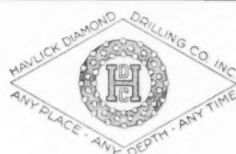
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(Continued from Page 77)

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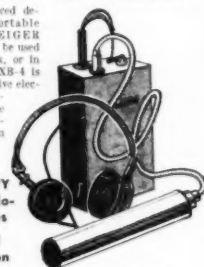
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FIRST CLASS ELECTRICAL DESIGNER for work large mining organization Chile, South America. General knowledge electrical applications and generation, transmission, and utilization of electric power desired. Must be familiar with installations for hydroelectric generating stations, substations, transmission lines, switchboards, industrial control, motors, hoists, and industrial electric railway equipment and know good deal of the theory involved in such applications. Should be able to turn out finished drawings with bills of material ready for the field, as well as work with Office Engineer in preparation of requisitions covering material involved in his drawings. Three-year contract. Transportation both ways and salary while traveling paid by the company. In reply give complete details. Write Box T-57, MINING WORLD, 121 Second Street, San Francisco, Calif.

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EXPERIENCED UNDERGROUND EQUIPMENT REPAIR MAN. LOCATION, STATE OF WASHINGTON. PAY COMMENSURATE WITH ABILITY. GIVE FULL DETAILS REGARDING AGE, CONDITION, FAMILY, EXPERIENCE, ETC. ADDRESS REPLY BOX T-60, MINING WORLD, 121 Second Street, San Francisco 3, Calif.

Positions Desired

MINING ENGINEER—20 year's experience in underground operating and engineering. Substantial experience in construction, diamond drilling, and mining exploration. Available on short notice. Write Box 152, Osburn, Idaho.

EXPLORATION & EXAMINING ENGINEER & GEOLOGIST

Age 41, very able, reliable, energetic, speaks fluent Spanish, 17 years' experience lode mining and placer dredging exploration, development, and operations with large organizations, including 6 years South America in very responsible positions. Good organizer, especially qualified for directing or carrying out Latin American work. Available for short or long assignments. Address Box T-54, MINING WORLD, 121 Second Street, San Francisco 3, California.

MINING ENGINEER, broad metallurgical, mining and administrative background, 22 years' successful and progressive mining operation reputation for obtaining results on large or small domestic and foreign operations. Write Box T-76, MINING WORLD, 121 Second Street, San Francisco 3, Calif.

MAN, 35, WANTS TRAINING IN SALES AND SERVICE FOR MINING EQUIPMENT COMPANY. WORKING UNDERGROUND AT PRESENT. PREFER SMALL BUT GROWING CONCERN. WRITE F. JUSTICE, BOX 3851, LOWELL, ARIZONA.

Business Opportunities

COPPER PROPERTY. Large Surface Showing and promising geological features. Inyo County, Calif. Will sell, lease, trade or grant interest for development or diamond drilling. Reply Box T-71, MINING WORLD, 121 Second St., San Francisco, Calif.

FOR LEASE: Talc Property, Inyo County, California. 8 ft. vein. Cabin on claim. Reply Box T-69, MINING WORLD, 121 Second St., San Francisco, Calif.

FOR LEASE

LEAD & ZINC—approx. 400 acres. Large veins crossing at about 300 feet apart, on good road.

GOLD—One of the largest deposits in the country. Low-grade, free-bearing gold ore. Power-shovel proposition. Justifies large mill. Good road.

GOLD—Two claims; good values; 8-foot vein.

GOLD—Group of claims on same vein as a large producer of high values.

MOLYBDENUM—carrying good values in gold, 200 acres. Plenty of water and timber on all groups.

Above properties all in Colorado.

By OWNERS. Box T-56, MINING WORLD, 121 Second St., San Francisco, Calif.

NOTICE

Prospectors and small mine operators—An organization is being formed to grubstake prospectors, aid small mine operators. This aid will be given without any obligation to you. PLEASE write and give your opinion for the need of an organization of this type and tell us how we may help you in your work. "The Prospector's Friend," United States Mineral Prospector's Aid Fund, 617 Main St., Buffalo, N. Y.

GOLD AND SILVER MINE

South Central Arizona. 10,000 tons ore blocked out. Diesel engine, compressor, air tank, drill and miscellaneous mining equipment on property. Terms \$10,000. Cash and royalty details on request.

MR. C. B. RUGGLES

Arivaca

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OWN COPPER PROPERTY IN COLORADO. Will lease on 10% royalty basis. Assays 6% to 14% copper, some gold and silver. Property located 120 miles west of Denver. Will be in Denver June 1st to 15th to show property. No triflers. Reply Box T-74, MINING WORLD, 121 Second St., San Francisco, Calif.

EXCELLENT LEAD-SILVER PROSPECT. Good values in lead, silver, tungsten and gold. Ample water supply. Desert area. Inyo County, Calif. Reasonable lease to responsible operator. Reply Box T-70, MINING WORLD, 121 Second St., San Francisco, Calif.

TO LEASE: Fully equipped gold mine. Good camp, compressor, diamond drill, hoists, mucking machine, etc. To company willing to finance additional development work on ore. Write Box T-68, MINING WORLD, 121 Second St., San Francisco, Calif.

FOR SALE OR LEASE: Small high grade gold mine. Death Valley area. 4,000 ft. elevation. 5150 Packard St., Los Angeles, Calif.

I WANT TO HEAR from somebody who is interested. I have a big deposit of Limonite Bog Iron. Box 143, Ouray, Colorado.

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Minn., operated by Snyder Mining Co., Duluth



NEVADA Consolidated Chollar-Gould
& Savage Mining Co., Virginia City



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IDAHO Coeur d'Alene Mines Corp.
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